TK4018
E5
V.27
No.
5

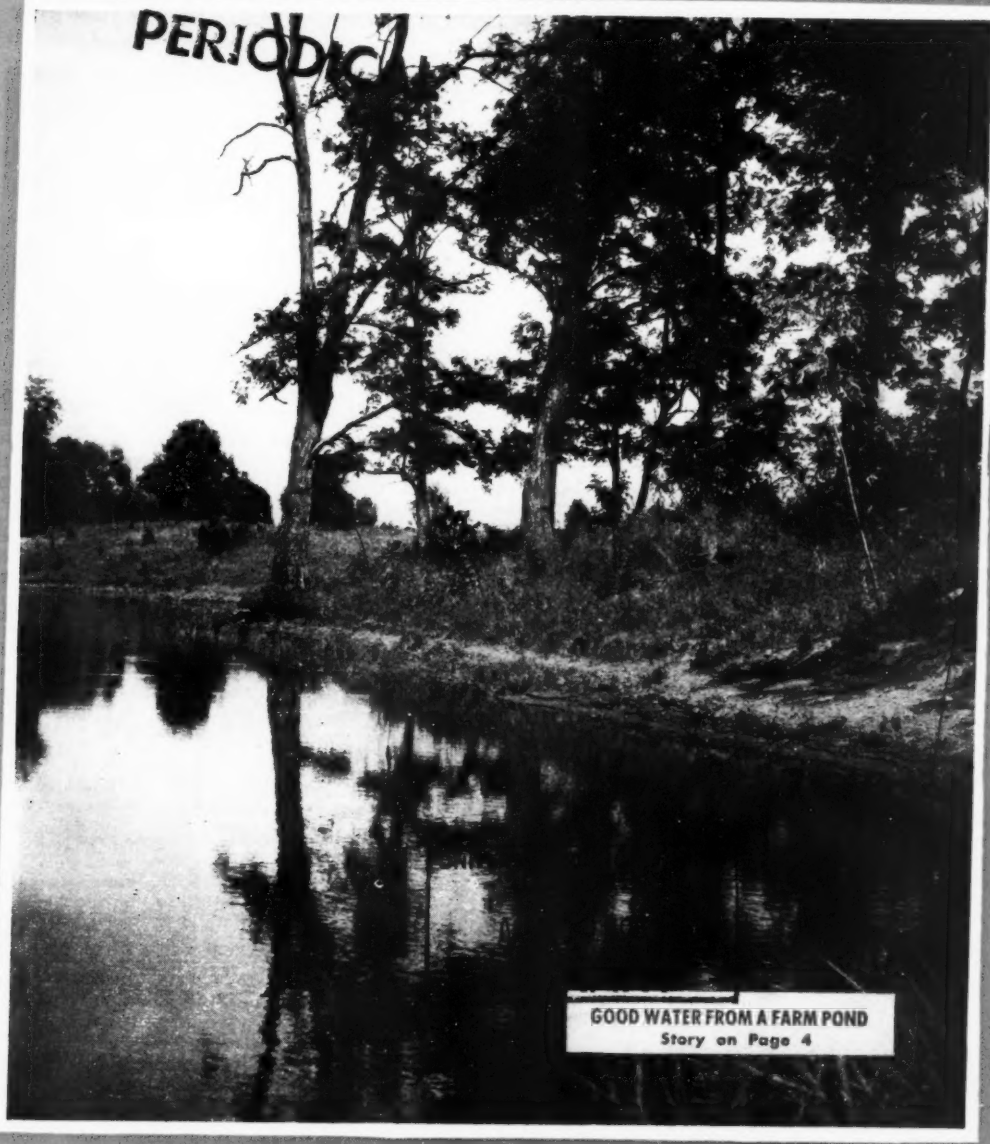
ELECTRICITY ON THE FARM *Magazine*

MAY, 1954

How Farm Water Systems Work
Light-Controlled Flowering
Gas Masks for Stored Apples
Blowers for Handling Grain
Home Pasteurizer—Quick—Safe

27th Year

PERIODICAL



GOOD WATER FROM A FARM POND
Story on Page 4

A CASE-SHEPPERD-MANN PUBLICATION

Ask for G-E Motors and Control on all Electrified Farm Equipment you buy!

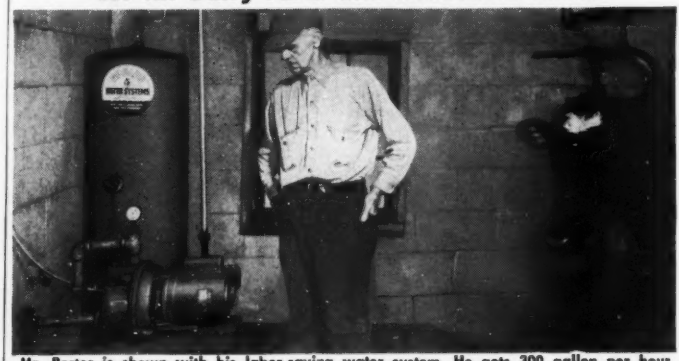
GENERAL ELECTRIC FarmNews

MAY *is* NATIONAL WATER SYSTEMS MONTH

MORE POWER TO THE AMERICAN FARMER through more electricity on the farm

AUTOMATIC PUMP PROVIDES "CITY WATER SERVICE"

New Water System Delivers Plenty of Fresh Water for All Dairy Farm and Household Needs



Mr. Porter is shown with his labor-saving water system. He gets 300 gallon per hour capacity with this pumping arrangement.

Mr. Alvan B. Porter and son Carl of Apulia, New York, never worry about having an adequate supply of fresh running water available — their new fully automatic water system provides "city water service" for all their 55-acre dairy farm requirements. As Mr. Porter says:

"I'm thoroughly pleased with my pump's operation and find it can take care of my barn and household needs without any strain. My cows have plenty of drinking water in front of them all the time. I hardly ever go near the pump — once in a while I look at the water-pressure gauge."

Powered by a G-E motor with built-in overload protection, this pump unit furnishes the daily water supply for 28 head of livestock and all the drinking and household water for the Porter's 12 room house with inside bath. For more information, check "water systems" on coupon below.

NEW TYPE IRRIGATION PUMP INCREASES COTTON YIELD

Pump company representative checks Mr. Olsen's new deep well pump.

Mr. Eric N. Olsen of Fresno, California, sprinkler-irrigates his 75 acres of cotton with new design deep well pumps. "I've found that I get better use from the same amount of water since these new type pumps were installed, which means increased yield and additional profit," says Mr. Olsen.

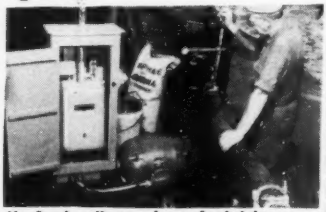
These pumps raise the water from wells and drive it through the pipes and out the sprinkler system at better than 40 pounds pressure, all in one operation. This means no booster pumps are needed for sprinkling. A special impeller mounted in the pump head at ground level does the work that would otherwise require three or four extra turbine bowls. These new sprinkler pumps are powered by dependable General Electric motors. For additional information check "deep well pump" on coupon.

OREGON FARMER DOUBLES GROSS WITH SPRINKLER IRRIGATION SYSTEM

Mr. Carl Sande, Star Route, Forest Grove, Oregon, one of the most successful crop farmers in the region says: "I double my gross profits by using a sprinkler irrigation system". Mr. Sande irrigates 30 acres of land from a creek with the pump shown below. This pump supplies 360 gallons per minute at 70 pounds pressure. It is driven by a G-E close-coupled 20 hp motor, protected by a rugged G-E motor starter.

Mr. Sande also has automatic starting and stopping of his irrigation since the pump is equipped with a G-E time switch. He can set it last thing at night knowing that the time switch will shut it off at the right time.

Sprinkler irrigation gives uniform distribution of fertilizer while irrigating.



Mr. Sande adjusts valve to feed right amount of ammonium sulphate into water.

GENERAL ELECTRIC COMPANY
Section 330-1B, Schenectady 5, N. Y.

I would like additional information on the following equipment:

- ☐ Automatic Water System
- ☐ Irrigation Pump
- ☐ Sprinkler System
- ☐ How To Choose Your Motor

NAME_____

ADDRESS_____

CITY_____ STATE_____

Editor's Chat

A NEW BROOM SWEEPS CLEAN

You have often heard that but have you ever taken a close look at the kitchen broom to see why that is so? We did after reading an article about broom corn and why it makes the best brooms. Seems that particular kind of corn has a lot of little barbs on the end of the leaf that catch the dirt. Some labor saving engineer ran a test and found a new broom twice as efficient, or some such matter as an old broom because the barbs wear off. SO—now we know from a scientific experiment and an engineer what the women learned some hundreds of years ago by just pushing a broom around. Wonder why it took the efficiency experts so long to catch up with the women?

ARE YOU READY FOR A FIRE?

Nothing is more disturbing than to see a farmer, with the help of his neighbors, clearing the debris left as a result of a fire. And we have all seen this. On the other hand, a most encouraging sight is a farmer getting ready to prevent a fire.

You know better than anyone what must be done around your place to prevent costly and tragic fires. You know that you must keep your lightning protection system in proper condition. You must keep grass and rubbish away from buildings. Safe wiring is, of course, very necessary. But, you should also be prepared to put a fire out. Nothing will do this so promptly and while the fire is still small and controllable as water under pressure.

You might well consider a separate pump just for fire protection. Too many lives and too much money is involved in buildings, livestock, and equipment on most farms to leave fire protection just to chance. Don't stop with just the pump. Install ample hydrants and have hose handy to them.

The next best thing to a separate pump is to be sure there are threaded faucets at strategic locations, and garden hose in suitable lengths with nozzles, so that whatever water you do have will be readily available if and when you want it in a hurry. An ounce of prevention is worth a pound of cure, and one hundred gallons of water at the start of a fire is worth more than thousands after it is beyond control.

A DOG'S LIFE

It's an old and quite common expression, "I lead a dog's life." Next time you are tempted to use it, take a good squint at your own dog. If he is like mine, he sleeps most of the time, rests in-between naps, and his principal activity is eating. His demand for service is frequent and insistent and, under sort of a veiled threat of what could happen, he usually gets it.

Looking at it objectively, a dog's life doesn't look so bad to me. Mine just flopped down again with a gentle sigh.

FUN IS WHERE YOU FIND IT

City folks sometimes wonder why farmers spend so little of their time and money on vacations and amusements. In most cases it is probably because they would rather farm and fix up things around the place than do anything else. This is especially true where a farmer has a well equipped, electrified farm shop and a couple of boys to spark him into constant change and improvement. It can be equally true where a mother has a 4-H daughter and a modern, electrified kitchen in which to work out projects jointly.

It may not be a necessity, but it certainly makes farming—or any other kind of life—more fun to have children with whom to share all our efforts and ambitions and whom we hope, will inherit and collect lifelong dividends from what we do today.

It is slightly out of our province to advise or promote large families, although we heartily endorse them, but we certainly feel qualified to recommend electrification, and lots of it, in the home and on the farm to get the most out of family life and as an added inducement to keep the children on the old home farm.

Jim Ridout

ELECTRICITY ON THE FARM *Magazine*

MAY, 1954—VOL. 27, NO. 5

Acceptance under section 34.64 P.L. & R. authorized at Dayton, Ohio.

W. J. RIDOUT, JR., *Editor*
K. V. ANDERSON, *Managing Editor*
EDNA E. KESTEL, *Homemaking Editor*
KARL H. GORHAM, *Business Manager*

Subscription rates: $1.00 per year; $2.00 for 3 years; $3.00 for 5 years. 10¢ per copy. Bulk rates on request.

Published monthly except combination issues June-July and Aug.-Sept. by **CASE-SHEPPERD-MANN PUBLISHING CORP.** **Executive Offices: 24 W. 40th St., New York 18, N. Y.** KARL M. MANN, *President;* FRED SHEPPERD, *Editorial Director;* I. H. CASE, *Vice-President and General Manager.* Mid-West Office: 8 So. Dearborn St., Chicago 3, Ill. *Western Representative:* 6000 Miramonte Blvd., Los Angeles, Cal.

Copyrighted 1954 by Case-Shepperd-Mann Publishing Corp. Not to be reprinted without permission.

Besides adding beauty, as proved by the scene on our cover and this view looking toward the house, this farm pond provides plenty of good water for all uses.

Good Water From a Farm Pond

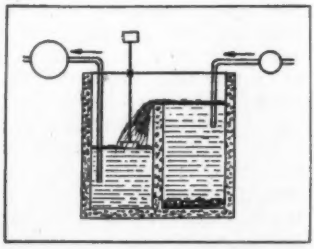
Proper Treatment is the Key to This Bountiful Supply

By DALE K. BEE

There's no water problem on the Joseph I. Williams farm near New Richmond, Ohio. Although he had a problem, he did something about it. The problem involved getting sufficient water for domestic use on the farm. To solve it, he built a one acre pond, 14 feet deep at the deepest point, which furnished all the water necessary for domestic and farm use. The system used to turn this unprotected pond into a source of pure water may answer the same problem on many farms.

A ¾ hp pump is used to pump the water from the lake into a holding cistern. This cistern is 8 feet across and 8 feet deep, with a wall dividing it into two sections. The water from the pond is pumped into the first section where chlorine is added in a proportion of two to five parts per million. This is done by a small, motor-driven, chlorinator. A 5.25 percent chlorine solution is used in the chlorinator. Approximately one-half gallon of regular chlorine bleach added to 4½ gallons of water makes the solution.

This first section also acts as a settling basin and the water overflows the dividing wall, thus supplying the second section of the cistern. About once a month Mr. Williams uses a test block to check the amount of chlorine in the water. This is done by adding a few drops of orthotolidine to a sample and comparing its resulting color with a standard test sample.



Water from the pond is pumped into the first section of the cistern. Chlorine is added at this point. This section also acts as a settling basin. When float switch in second section lowers, it starts both pond pump and chlorinator. Treated water overflows into second section which supplies pressure pump. When float is raised, both pond pump and chlorinator are shut off.

About once a month Mr. Williams checks the water by means of a test block. A few drops of indicator, added to the water sample, produces a color. By comparing this with the colors of the samples in the test block, the amount of chlorine remaining in the water is determined. The chlorinator is the small unit on the bench. It draws the chlorine solution from the jar on the floor and adds it to the water in the cistern.

Water level is maintained in the cistern by means of a float switch. As water is used, the switch turns on the pump from the pond. It also turns on the ¾ hp pump on the chlorinator. The chlorinated water overflows and fills the second cistern section to the point where the float again shuts off the pond pump and chlorinator.

From the second section of the cistern a 1½ hp jet pump takes over. It has a capacity of 1,100 gallons per hour and provides all the water for the farm and home. The pressure system operates about 10 pounds higher than normal—30 to 50 pounds—to provide extra pressure for backwashing filters through which the water passes.

After leaving the pressure tank, the water runs through a neutralizing filter. This removes any acidity in the water as well as any remaining dirt particles.

Next, the water passes through a filter tank containing activated carbon. This removes any unusual taste, color, or smell that may be left in the water. This filter has operated for two years without change and the neutralizing filter for four years. Both are backwashed every two to three months.

Frost proof hydrants make water available wherever it may be needed, for sprinklers, or for fire protection.

This may sound like a lot of system for a water supply. However, Mr. Williams has been well pleased with its operation. He says it is not expensive to operate and it only requires checking about once a week. Frost proof hydrants around the yard make water available for the lawns and other extra uses. When you have a pond to work from, there's plenty of water for anything. When you treat it as Mr. Williams has, it's good for anything.

Light-Controlled Flowering

By HAROLD HALL

The Loma Flora Company, large grower of commercial flowers, especially daisies and chrysanthemums, near Whittier, California, is able to time their flowers to reach the market off season and obtain better prices for them. Timing is achieved by control of the photoperiod.

The two flowers named are extreme opposites in characteristics. Chrysanthemums are called short-day plants, normally flowering from early October until January. However, the days are short and conducive to forming flower buds from August until May. It is possible to fool the calendar during this period by lengthening the day. Supplementary lighting of 2 to 5 foot candles is used during these months to keep the plants vegetative. Then, by leaving lights off, the day can shorten again, and the plants can be forced into flower during late winter and early spring. This is an example of flower retardation with light.

The Shasta daisy, the opposite, is a long-day plant that flowers in late May and through the summer. The same thing applies here. The difference is that a lengthened day forces them to flower. The same lighting intensity as that used on chrysanthemums will produce daisies up to six weeks in advance of normal. Previous to lighting Shasta Daisies, the second crop, being late in the season, was of quality that was not marketable. With the first crop coming earlier, the second crop, after the lighting was used, was marketed the same as the original crop. This item alone proved the installation very valuable.

Foot-candles required are a minimum of one, not more than five. The system was designed for 2 foot candles minimum, 3½ foot candles maximum. The original layout called for 60 watt lamps in reflectors, but the grower increased the bulb size to 100 watts and eliminated the latter. He uses 100 watt bare lamps, mounted 6 feet high, spaced 14 feet apart on 12 foot rows. Each acre has approximately 254 lamps. Lights are on from 8:00 P.M. to 12:20 A.M. each night. Switching is located in the center of a four acre plot so that two acres can be lighted and two left stand-by for soil conservation. The Loma Flora Company has three such installations, with 12 acres under lights. There are four other growers using lights in this area, with a total of 18 acres under illumination. This method is no longer an experiment. It is a practical way to control growth.

Mounted 6' above the plants, the strings of lights are about 12' apart. Approximately 254 lamps (100 watt) are used for each acre. The lamps on each string are placed 14' apart.

Blowers for Handling Grain

By R. W. KLEIS

On an ideally arranged farmstead, moving grain and ground feed from the storage and grinding area to the feeding area would be no problem. These two areas would be close enough together so that feed could be spouted, or moved by short conveyors, to the feeding point. However, such is not the case on most livestock farms. Much time and effort is required for handling feed about the farmstead. But times are changing! About a hundred Illinois farmers are now using blowers to do this job for them.

The installations vary in length from 50 to 300 feet. The feed travels through 4, 5, or 6 inch sheet steel pipe. These systems, installed in the last three years, have greatly increased interest in this method of moving feed. The farmers report very satisfactory performance.

There are several different types of conveyor systems which have application in handling various materials about the farmstead. In considering possible methods of moving grain and ground feed, however, blowers have some advantages over conveyors using augers, belts, or chains. Some of the significant features are:

1. Simple construction with only one moving part. This minimizes service and maintenance problems.

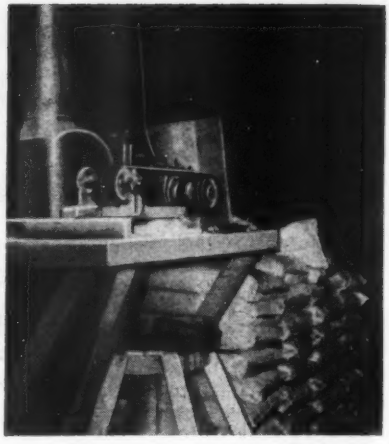
2. The directing mechanism consists of sheet steel pipe which is readily available and is relatively inexpensive, even for long distances.

3. The system is flexible and can include turns.

4. The pipe is light and can be suspended overhead and out of the way.

5. The system can readily be made weatherproof.

It is true that blowers are somewhat less efficient than mechanical conveyors as far as power is concerned. However, this is offset by the lower first cost of a blower system. Also, in most cases a large portion of a feed handling system may be outside. This makes it necessary to have a weather-proof system. One which can be suspended overhead without bothersome and unsightly supports, and that is already enclosed, offers lower installation cost.

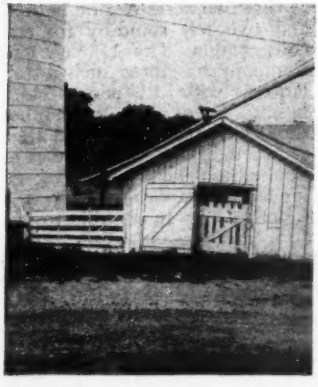


This blower, driven by a 3 hp motor, moves the feed 140 feet from the crib to the barn on the Garretson beef and dairy farm La Salle Co., Ill.

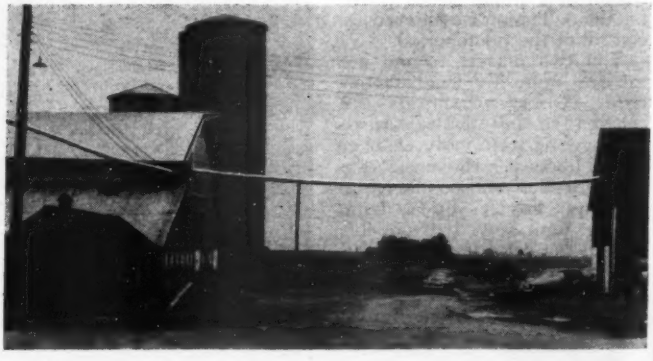
Research has been carried on at the Illinois Agricultural Experiment Station on such factors as pipe size, blower size, power requirements, capacity, air velocity and pipe arrangement. This work has resulted in some information which will contribute to greater efficiency and lower costs of feed blowing.

Both farm experience and research indicate the necessity for an adequate air velocity. The minimum velocity for satisfactory and trouble-free operation is 4,000 feet per minute. The speed of the blower must be adjusted according to the length of pipe to give this velocity. The manufacturer of the blower to be used can supply information on the speed needed for various sizes and lengths of pipe.

The question of what size pipe to use is one of the first to



Above: This blower pipe discharges through a dust collector into feeders on the Norrish farm.



Right: It's 125 feet to the dairy barn and an additional 175 feet to the hog barn on the Don Stauffinberg farm in Kankakee County, Ill. This 360 acre farm carries 40 dairy cows and 200 hogs. Two 3 hp motors provide the power to blow the feed the total distance of 300 feet.

be answered. Pipe sizes of 4, 5, and 6 inches are practical, depending on the quantity of grain to be handled per hour. It is desirable to use the smaller pipe, when possible, because it requires much less power for a given conveying rate. The maximum capacity for 4 inch pipe (this is large enough for most motor driven blowers) is 3,500 pounds per hour.

The power requirements for blowing grain are about 1 horsepower for each 100 feet of 4 inch pipe plus ½ horsepower for each 1,000 pounds of grain moved per hour. For a 6 inch system the power requirements per 100 feet of pipe increase by 50 percent. In calculating pipe length, the dust collector must be considered an equivalent to about 25 feet of pipe. The figuring is simple. As an example, suppose you wish to move 2,000 pounds of feed per hour a distance of 100 feet. With four inch pipe you would need a 2 hp motor. The equivalent pipe length would be 100 plus 25 feet for a dust collector, or 125 feet. At 1 hp per 100 feet of pipe, this would require 1.25 hp. To this you would add .33 for each 1,000 pounds of feed moved. For 2,000 lbs., this would be .66 hp. Adding the two, the result is 1.91. Thus, you would need a 2 hp motor.

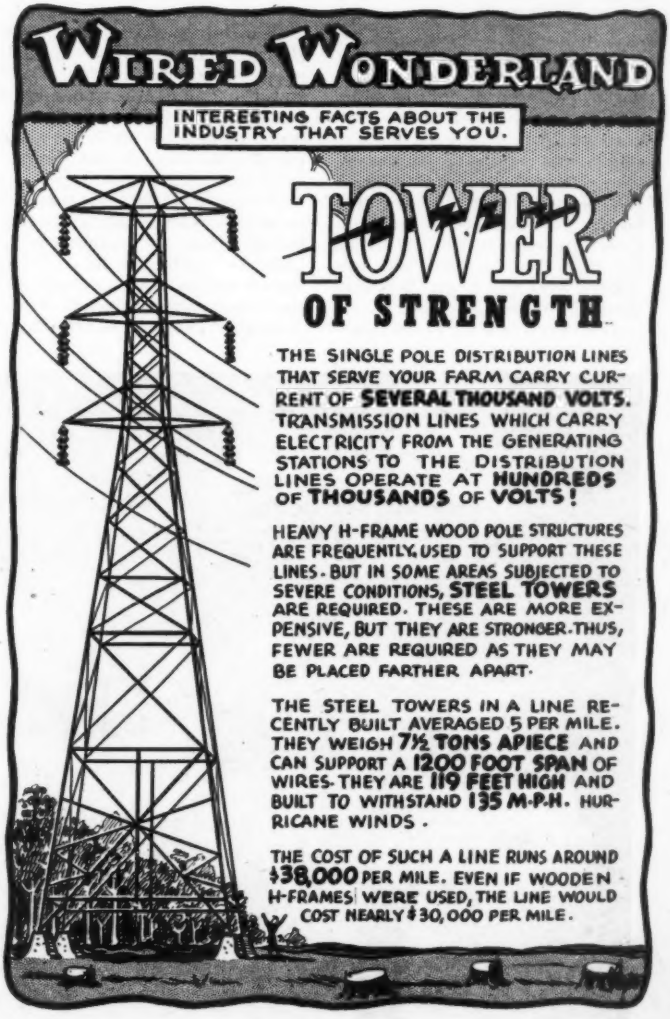
The blower should be 16 to 20 inches in diameter and the grain is usually fed into the intake at the center of the blower. This means that the grain is subjected to impact on the blower blades, resulting in considerable damage to whole grain. This is not objectionable to most feeders, although for market grain it cannot be tolerated. In the case of ground feeds, the blower will decrease the average particle size a little. Some farmers desire to compensate for this with a slightly coarser grind.

Type of grain and fineness of grind make very little difference in power requirements of a system. Although heavier and coarsely ground feeds require slightly more power than lighter and more finely ground grains, the difference is so slight that it can safely be ignored.

Neither field experience nor research indicate any efficiency advantage to sloping the pipe in either direction. It is desirable from a practical standpoint, however, to slope the pipe slightly to facilitate drainage of any moisture accumulated in the pipe from condensation or leakage. It is usually best to slope it toward the discharge end.

A question is often raised concerning separation of grain when it is discharged from a blower system into a bin, cart, or feeder. There is separation of grain according to particle size when it is dropped into an open container. However, tests indicate that this is caused by gravity and also takes place at the discharge of augers and belt conveyors when the grain is allowed to drop freely. Dust can be controlled in a blower system by tight connections and proper venting of the dust collector.

Many Illinois farmers are using blower systems in conjunction with automatic electric powered grinders and self-feeders or mechanical feeders for completely mechanized grain handling and processing and are very pleased with their systems. For those interested in a more efficient feeding system a blower is often a logical answer to the moving problem.


WIRED WONDERLAND
INTERESTING FACTS ABOUT THE INDUSTRY THAT SERVES YOU.
TOWER OF STRENGTH
THE SINGLE POLE DISTRIBUTION LINES THAT SERVE YOUR FARM CARRY CURRENT OF SEVERAL THOUSAND VOLTS. TRANSMISSION LINES WHICH CARRY ELECTRICITY FROM THE GENERATING STATIONS TO THE DISTRIBUTION LINES OPERATE AT HUNDREDS OF THOUSANDS OF VOLTS!
HEAVY H-FRAME WOOD POLE STRUCTURES ARE FREQUENTLY USED TO SUPPORT THESE LINES. BUT IN SOME AREAS SUBJECTED TO SEVERE CONDITIONS, STEEL TOWERS ARE REQUIRED. THESE ARE MORE EXPENSIVE, BUT THEY ARE STRONGER. THUS, FEWER ARE REQUIRED AS THEY MAY BE PLACED FARTHER APART.
THE STEEL TOWERS IN A LINE RECENTLY BUILT AVERAGED 5 PER MILE. THEY WEIGH 7½ TONS APIECE AND CAN SUPPORT A 1200 FOOT SPAN OF WIRES. THEY ARE 119 FEET HIGH AND BUILT TO WITHSTAND 135 M.P.H. HURRICANE WINDS.
THE COST OF SUCH A LINE RUNS AROUND $38,000 PER MILE. EVEN IF WOODEN H-FRAMES WERE USED, THE LINE WOULD COST NEARLY $30,000 PER MILE.

Gas Masks for Stored Apples

Filtered Storage Air Means Healthier Fruit

From a dollars and cents viewpoint, I can't see how any apple storage operator can afford not to use these air purifiers", says W. J. Leonard, apple and peach grower of Richwood, New Jersey.

"We've had these units in our storages for the past five years", added Mr. Leonard, "and there hasn't been a year when we weren't glad of it".

Mr. Leonard was talking about the activated carbon air filters which he uses in his storages to protect his fruit.

Few people think of an apple as a particularly delicate fruit, but probably none requires more careful nurturing—from the first buds of Spring until the fruit is safely in the hands of the grocer. One of the most critical periods is the time it spends in the warehouse. Packing has to be done carefully, storage has to be at the right temperature and humidity, and the boxes properly stacked for free air passage.

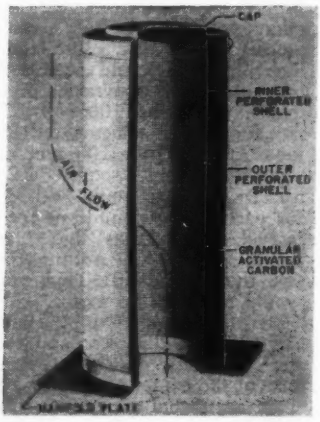
But even these precautions are often not enough to insure apples reaching the consumer in the best of shape. For no apparent reason some would ripen faster than others. Another riddle was the cause of burnt, brownish discolorations called "scald". It is now known that the apples themselves are the culprits. Gases given off by the fruit are responsible. And it has been shown that removing these impurities from the storage atmosphere will, for practical purposes, eliminate these hazards. As a result growers have been able to hold their fruit as much as six weeks longer than usual and thus take advantage of a more favorable market—sometimes getting 50¢ or $1.00 more per bushel than if they had to sell earlier.

An apple doesn't die the moment it's picked. Like any other living thing it continues to "breathe" until the food it has stored within it is used up and the tissues begin to break down.

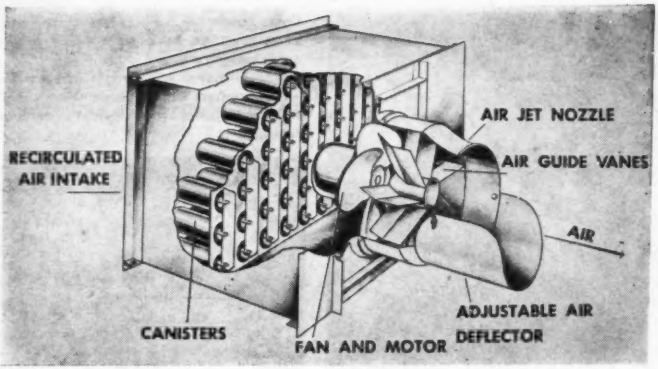
Storage conditions are aimed at slowing the aging process. But in addition to exhaling carbon dioxide, fruits also give off very small quantities of numerous other gases, some known, some still unidentified. Many of these gases are known to be injurious.

Right after picking, an apple lives at a slow and even rate, but, after a few days, its life rate begins to pick up speed and rises until a peak is reached. It is during the time that apples are "fast livers" that they produce the most gas. And invariably some apples in a storage will be farther along in their life process than others and consequently be producing more gas. This gas acts as a stimulant on the rest of the fruit. The old saying about one bad apple spoiling the barrel is more than fancy.

Agricultural scientists have found the answer to these hazards by filtering the storage air through activated carbon, the same material used in a gas mask. Though relatively new in air purification work, carbon is probably the oldest purifying



Above: Cut-away view of a canister shows how the gas-laden air passes through the activated carbon purifying agent. **Left:** Howard Heritage of the W. Wade Heritage and Sons Farm, Richwood, N. J., examines a Golden Delicious apple, still firm and juicy in late February. That's the filtering unit, overhead.



A powerful blower draws air through the gas traps and distributes it through the storage room.

agent known to Man.

"It is good to keep water in copper vessels, to expose it to sunlight, and filter it through charcoal". This was written about 2000 B.C.

Marco Polo mentions the Chinese using charcoal to purify and whiten sugar.

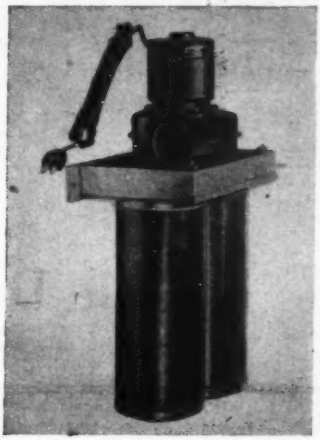
Carbon or charcoal does its work by *adsorption* which is a little different from absorption. A sponge absorbs water while carbon adsorbs gaseous or liquid impurities. The water penetrates the entire sponge but in adsorption the impurities condense and adhere to the surfaces of carbon, something like the way water drops cling to glass. Actually this phenomenon of nature takes place on any surface. The reason activated carbon is the most useful material for this sort of work is because it has so much surface area in comparison to the space it occupies. So honeycombed with tiny crevices is activated carbon that a pound is estimated to have about 140 acres of exposed surface. The word "activated" simply describes carbon that has a maximum of surface area.

The air purifiers, made for apple storages, are simple. Perforated cylinders of the carbon are contained in a casing together with a blower. The cylinders are arranged in such a way that a large filter area is exposed to the air stream in a compact space. This spacing of the cylinders, or canisters, is all-important because it insures uniform air passage. Each purifies 25 cubic feet of air per minute which is adequate to protect 250 bushels. The units are made in 5000 to 20,000 bushel capacity. Cost, on the basis of storage capacity, works out to about 6 cents per bushel.

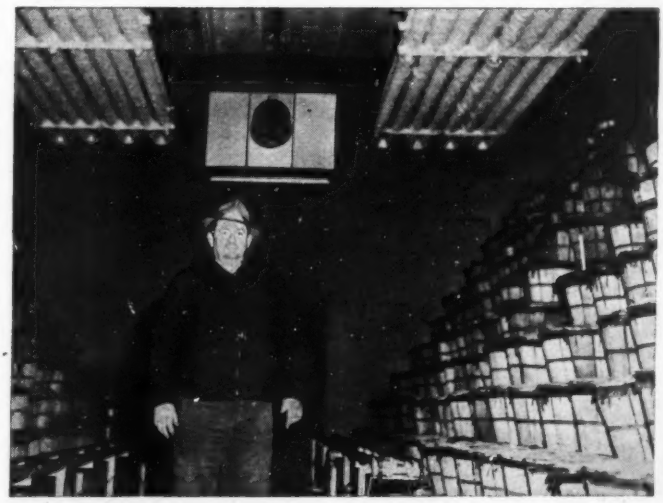
The type of activated carbon used, made out of coconut shells, will hold up to 20 per cent of its own weight in condensed gas. It is "reactivated" or freed of the gases it has adsorbed and restored to its original state between seasons by the manufacturer. This company (Connor Engineering Corp., Danbury, Conn.) developed the equipment in cooperation with fruit men.

Keeping storage atmospheres gas-free has another important advantage. By permitting "mixed" storage it makes it possible for the storage operator to make full use of his space.

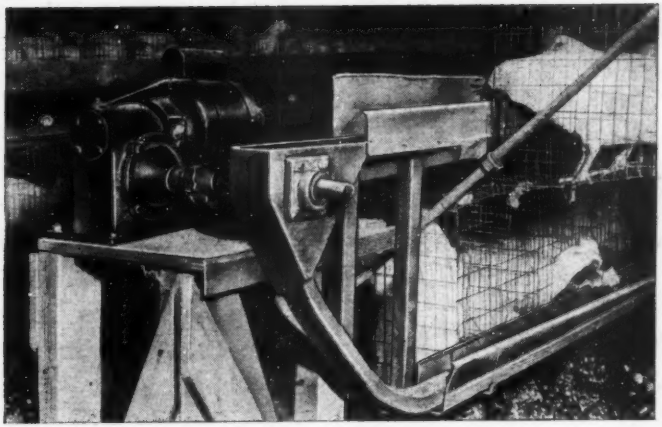
"We're able to store vegetables along with fruit", says Mr. Leonard, who has 300 acres in apples and 300 in peaches. "Right now we're storing 12,000 bushels of carrots for the Campbell Soup Co. in the same room with 10,000 bushels of apples."



This small unit can be used in storages up to 500 bushel capacity or in any small space. It handles air at the rate of 50 cubic feet per minute.



With the air in his storage room constantly being cleaned, W. J. Leonard is able to store both apples and carrots without danger of flavor transfer. Apples on the right.



Left: Power for the endless chain feeder is supplied by a gear-motor driven sprocket.
Below: Mayo Argabright checks the feed hopper which automatically fills the chain just before it enters the feed trough.

Double Deck Feeder

By F. LELAND ELAM

Mayo Argabright of Moorpark, California, devised an electrically powered chain feeder for his double decked poultry cages, which embraces a unique yet simple and efficient method of handling the feed.

A special feature of this installation is a metal sleeve to take the feed and chain from the lower to the upper level of the feeder system. The sleeve is used instead of a standard idler sprocket.

This arrangement requires no lubrication as there are no working parts except one driving sprocket. The feeds act as lubrication at both the sprocket and in the sleeves. The chain is powered by a ¾ hp motor mounted at one end of the 200 foot line of cages housing 600 hens.

Mash is supplied to the chain from a 125 lb. capacity hopper which is located at one end of the feeder. The chain pulls feed from the bin at the start of its lower run.

The mash is carried along the feed trough in front of the lower cages and, when it arrives at the far end, it passes up through a sleeve and over the driving sprocket. The sleeve is made of 1x2 inch channel iron bent to shape, and closed with strap iron, welded in place. The driving sprocket turns in a closed box, or casing, which fills with feed. This results in a constant flow to the chain on its return trip.

Upon arrival at the far end of the upper trough—the end where the feed hopper is located—the chain takes the feed into another sleeve and proceeds under the feed hopper and into the lower feed trough to make its continuous rounds.

The chain, while in the feed troughs, runs in a grooved 2"x4" with galvanized iron sides. Each level of troughs is 200 feet long, which means that slightly over 400 feet of chain is used.

The system has been run six times a day for 15 minute periods for the past three years and has never developed trouble or given indications of wearing out.

Busy Elevator

About three years ago, Mr. Joe Lee, a Tuscaloosa County, Alabama, dairyman, realized that he was spending a lot of his time, money, and patience trying to store hay and other feed for his cows. After giving a little thought to the matter and studying methods that were being used in other sections to accomplish the job that he was doing by hand, he decided to purchase a portable elevator.

During the three years that this has been in use, he figures that it has saved him the labor of three men besides making the job much easier. The elevator is operated by a 1½ hp electric motor and, while it is used principally to put hay and oats in the lofts, he finds it handy for doing other jobs, too.

As a rule MOST men think twice before leaving their wives for an evening out. FIRST, they think up an excuse for going out, THEN think up a reason WHY she CAN'T go out with them .... SODDEN THOUGHT: TOO many trains of thought are being operated by APPRENTICE conductors .... One of the things that STILL worries business men as MUCH as ANYTHING is the GREAT number of UNEMPLOYED folks STILL on the payrolls .... DRUGGIST: a PILLER of the community .... ECHO: a HOLLER mockery .... CHECKMATE: a rich husband .... Riding the crosstown bus the other morning, we overheard two gals in confidential conversation. Said one to the other, "YOU know I WOULDN'T say anything about Ellen UNLESS I could say something GOOD. And, OH, BROTHER, is THIS good!" .... CONSULTING PHYSICIAN: a doctor called in at the last minute to share the blame .... GOLFER: a man who, when he misses his drive, EXPRESSES himself to a TEE .... A man can NOW travel SWIFTLY on land, in the air or on the water. Trouble is, SO can his creditors .... CUSTOMER, to clerk: "Do you sell SUNDRIES?" CLERK: "I'm sorry, ma'am, THIS store is closed on SUNDRIES and HOLIDAYS." (Caw! Caw!) .... Ma Larkey sez that PROCRASTINATION is the THIEF of time—and SO is every other BIG word .... EVERSTOPTOTHINK? — the AVERAGE woman would RATHER be TWO-FACED than DOUBLE-CHINNED .... WRESTLING MAT: PIN CUSHION .... Mama Firefly, to Papa Firefly, "MY, MY, isn't Junior BRIGHT for his age?" .... BRIDEGROOM: a wolf who is paying off for his whistles .... An AUTO TRAILER is a handy sort of thing. It gives the family a place to live while the driver finds a parking place .... Here, we think, is a REAL shaggy-dawg KNOCK-KNOCK. Here goes, "KNOCK, KNOCK," "Who's there?" "Sam and Janet." "Sam and Janet who?" "Sam and Janet evening, you may meet a stranger—!" .... PARTING THOUGHT: A CROW is a bird that never complains without CAWS .... Your pun-peddler —*DUFFY*.

Plastic Pipe today must meet your needs tomorrow

"I've studied this problem thoroughly, son. This Yardley water system pipe will not only pay off right now . . . but will save costly replacement in the years ahead."

Only Yardley *ClearStream* Farm Water System Pipe is *PressuRated*

Now you can be sure of a uniform safety factor in every foot of your cold water lines. Yardley *ClearStream* Pipe for farm use is now *PressuRated* at 75 lbs. working pressure for all six sizes —½" through 2".

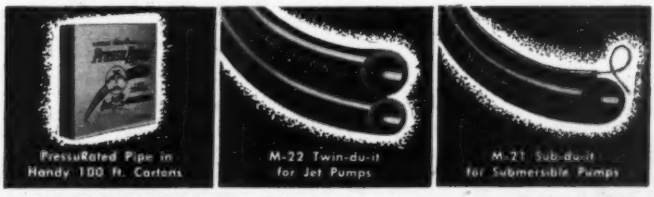
Ordinary plastic pipe is made in metal-pipe wall thicknesses. As a result, one size might be rated at 100-lb. pressure — another size only 30 lbs. With *ClearStream PressuRated*, every size is the same.

Regardless of your present pump pressures or size of the water system, use the only plastic pipe designed for present and future needs. *ClearStream PressuRated* is a better long-term investment — and in some cases costs less now than before. Also made in 100 and 125-lb. pressure ratings.

Guaranteed 100% pure virgin Polyethylene; weighs ⅛ as much as steel; can be installed in a matter of minutes with a few simple tools; never rots, rusts or electrolytically corrodes. Uniform fittings for all sizes. Available through your dealer in standard lengths and in boxed 100-ft. coils.

Look for the pressure rating and the *ClearStream* name stamped on every length. For service lines or pump pipe, insist on *ClearStream*. Send for literature.

SPECIFICALLY DESIGNED FOR EVERY COLD WATER USE



YARDLEY PLASTICS CO., 142 Parsons Ave., Columbus 15, Ohio

In Canada: DAYMOND CO., LTD., Chatham, Ont. • Export Sales: F. & J. MEYER, 115 Broad St., New York 4, U.S.A.

How Farm Water Systems Work

Pumps, Pressure Tanks, and the Controls That Keep Them Going

By G. E. HENDERSON

The story is told of an old Indian Chief who made his first trip from the reservation to the city. His friends took great pains to show him the big buildings, beautiful parks, impressive monuments, etc. Their reward was stone silence. It was not until they took him to his hotel room that night that they got their first reaction. They showed him the bathroom and how to turn the water on and off. "Ugh," he exclaimed in astonishment, "water run up hill."

Each year additional thousands of farmers make "water run up hill" from their wells and springs to their homes and farm buildings. To most of us this modern miracle is commonplace. Even the equipment that does it is not very glamorous, like a range or refrigerator. But an electric water system is probably the most important piece of equipment on your farm. It is essential to improved sanitation in the home and on the farm, to convenience, to production, and to safety.

Are you interested in how it works? Maybe not! Your pump dealer is supposed to know, so let him worry. That's good practice in some cases but in some it isn't.

What if you are buying a new water system? Can you be influenced into buying a "bargain"? One that may or may not, fit your pumping job?

What about pump trouble? Do you understand your pump well enough to fix simple troubles?

If you can't answer these questions, read on. We shall try to give you a helpful working knowledge of the common types of automatic water pumps and their accessories. It may save you time, trouble and expense later.

There are a wide assortment of pumps for farm use. But, no matter how they are made, they can do a certain amount of pulling water by suction and a lot of pushing. The suction comes when your pump draws water into its working mechanism. It pushes when it passes the water on "up hill" through your plumbing system.

Even the best suction pumps can't pull water more than 22 to 28 feet straight up. Some are limited to about 15 feet. Beyond these depths the pumping mechanism has to be lowered into the well. All farm pumps do a better job of pushing than pulling by suction.

Let's see what the difference is in the way different kinds of pumps work.

Piston Pumps

The oldest, and best known, automatic pump for farm use is called a *piston pump*. You are probably familiar with how the old hand-operated cistern pump works. As you push down on the handle, water is lifted by the plunger and flows out the spout (Figure 1). At the same time water moves in from the well pipe below the plunger and fills the cylinder. That is the reason it is hard to push down on a pump handle if you have to lift a long heavy water column out of the well. Then as you lift the handle all the water below the plunger is trapped by a check valve in the bottom of the cylinder, but a valve in the

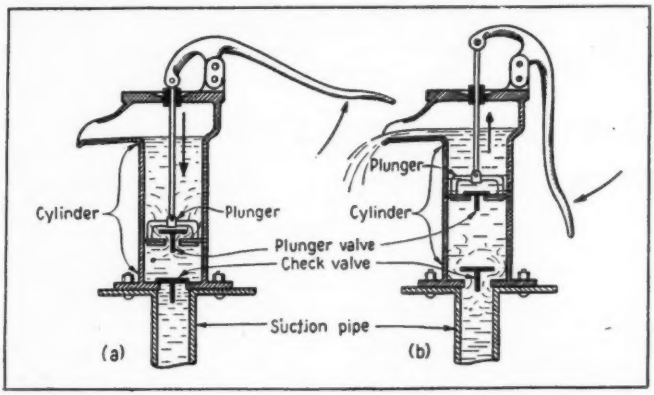


Figure 1: As plunger moves down (a) trapped water passes through its open valve. On the up stroke (b) it lifts the water from the casing.

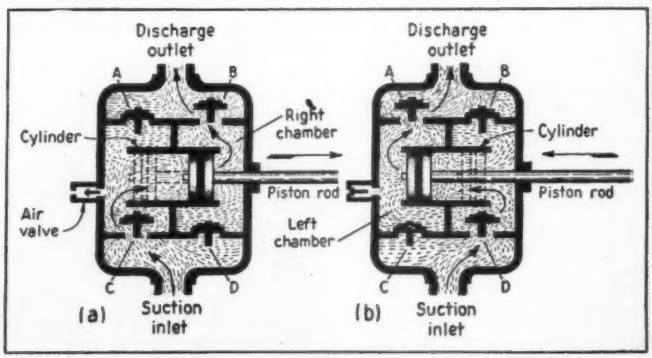


Figure 3: A double acting pump moves water on each stroke. It takes in air on every other stroke. Note that air valve is open at (a) and closed at (b).

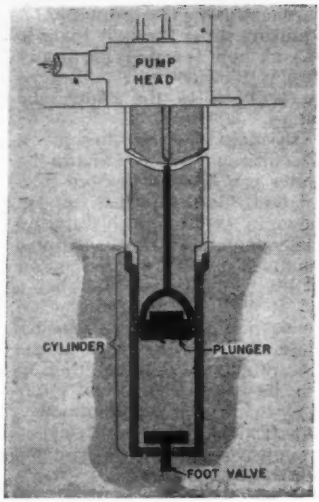


Figure 2: For deep wells, plunger is located below surface of water.

plunger lets it pass to the upper side of the plunger.

Many automatic piston pumps work exactly the same way.

If the water in your well is down more than 22 feet the plunger and cylinder is put down in the well to within a few feet of water level. Better yet, it should be placed below water level (Figure 2). It works exactly like the cistern pump. These are called *deep-well, piston pumps.* This type pump works at a fairly slow speed because of the long sucker rod that extends from the pump head down to the cylinder to work the plunger.

If you are sure the water level in your well will not drop below 22 feet you can use a *shallow-well piston pump.* It works on the same principle except it pulls water from the well on one side of the plunger at the same time it pushes it out of the cylinder on the other side (Figure 3). On the return stroke the side that was pulling, pushes water out—the side that was pushing, pulls water into the cylinder.

This arrangement is called a *double-acting pump.* Since the pump is a compact unit it is designed to work at a much higher speed than a deep-well piston pump. All piston pumps for shallow wells work on this principle no matter how they look on the outside.

All piston pumps are called *positive acting* because each stroke of the plunger moves a definite amount of water. Some

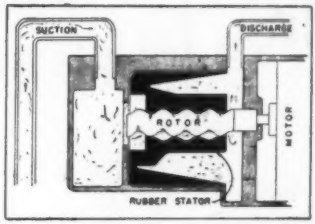
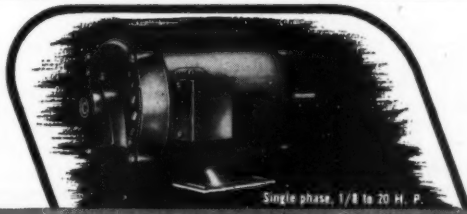


Figure 4: The helical rotor works on the same principle as an auger.

pumps are not that positive as you will see later.

Rather recently another type of positive acting pump was introduced to farmers. It is called a *helical-rotor* type (Figure 4). It has an irregular-shaped (rotor) shaft that turns in a rubber (stator) sleeve. As it turns it pockets water between the shaft and sleeve and squeezes it out the top. It will pull water 22 feet by suction. But if there is any possibility of the water getting lower than that, the pump

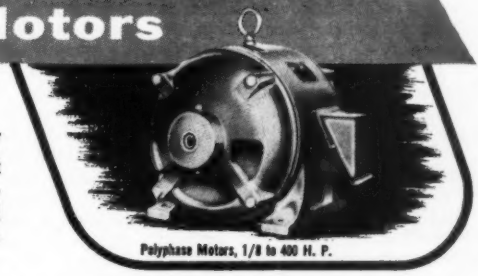
Century



"Farm-Tested" Motors

FIT your present farm and home Equipment . . .

Make sure that you get a dependable CENTURY "Farm-Tested" Motor when one of your present motors needs replacing. Pump motors, oil burner motors, fan and blower motors, general purpose motors . . . all made to industry standard mounting dimensions.



Century C MOTORS

CENTURY Motors have been the "Farm-Tested" standard for more than 50 years. They eliminate back-breaking chores . . . do jobs faster, cheaper.

Ask your dealer for CENTURY replacement motors. Specify CENTURY Motors on your new equipment.

869

CENTURY ELECTRIC COMPANY
1806 PINE STREET • ST. LOUIS 3, MISSOURI

Figure 5: If a filled hose is whirled as shown it will pump water by centrifugal force.

is made so the pumping assembly can be lowered into the well the same as the piston pump.

There are other positive acting pumps but they are seldom used for farm water systems so we'll not discuss them here.

Centrifugal Pumps

At one time piston pumps were about the only kind of automatic electric pumps used on farms. But all piston pumps operate at fairly slow speeds as compared to an electric motor. If pumps could be used that would operate at electric-motor speed the manufacturer would not need the extra belts, pulleys and gears used with piston pumps.

The *centrifugal pump* fits this situation well. It will operate at motor speed and is so simple it is almost unbelievable. All it does is throw water out of an *impeller*.

If you don't know how an impeller works let's suppose you have a length of hose. Hold it so one end is in a bucket of water and the other end extends several feet past your hand (Figure 5). Now all you need to do is to fill the hose with water and start swinging the loose end around your head as fast as possible, leaving the other end in the bucket of water.

Here is what happens—the water in the loose end of the hose is thrown out. As it is thrown out it sucks water from the bucket to take its place. That is the way a centrifugal pump works.

Remember we had the hose full of water before we started swinging it. This is important with a centrifugal water pump. If there had been nothing but air in the hose there would have been no pumping action. Even a little air in most centrifugal pumps will cause them to stop pumping. However, there have been improvements made on some centrifugal pumps so they will pump a small amount of air along with the water.

Another important point to remember is that there were no valves on the hose. Once a centrifugal pumps gets started pumping it needs none either. In actual use though, it does have valves to make sure the impeller and the pipe down to the well stays filled with water when the pump isn't running. Then when it starts operation it will start pumping at once.

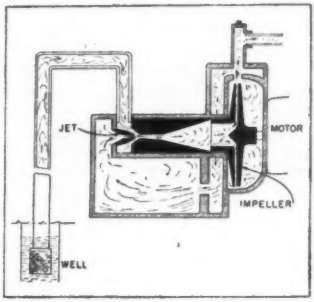


Figure 6: By forcing some of the water from a centrifugal pump through a small opening a pumping action is created at the point where the water jets through the opening.

A centrifugal pump can both pull water by suction and push water, the same as a piston pump, except it can't pull water from more than about 15 feet as compared to 24 to 28 feet for a piston pump. That, plus the fact that earlier pumps wouldn't pump air, kept centrifugal pumps from becoming popular with farmers for a while—except for irrigation use, when the pump runs a long while without stopping.

Finally some one got the idea of using a jet with a centrifugal pump, and we had our first *jet pumps*. A jet is really another pump of very simple design which is teamed up with a centrifugal pump. The jet pumps by squirting water through a nozzle at very high speed. With proper design it will push additional water back to the centrifugal pump.

By mounting a jet directly on a centrifugal-pump (Figure 6) water can be pulled more than 15 feet. Or the jet can be put down in a well to push water up close enough to the centrifugal pump so it can pull it the rest of the way (Figure 7). When a jet is used, some of the water being pumped has to be pushed back down to the jet so it can pump more water. Addition of the jet to the centrifugal pump has made this combination a practical and comparatively inexpensive pump for general farm use.

One of the newest and most promising pumps for farm use is called a *submersible centrifugal pump*. It has two or more impellers fastened to the same shaft (Figure 8). The number of impellers (or stages) is determined by how far water has to be pushed and against how much pressure. As water is thrown out of one impeller the next one picks it up and throws it out at still greater pressure. This arrangement is then attached directly to the motor and

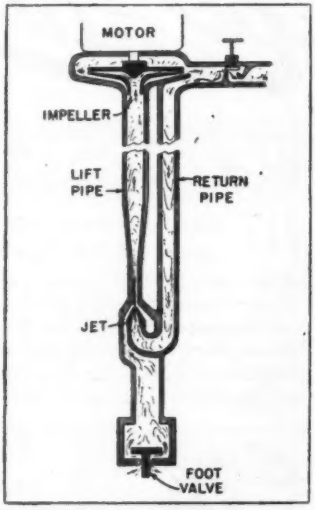


Figure 7: For deep well jet pumps, the impeller may be at the ground surface. The jet is located down in the well near the water surface.

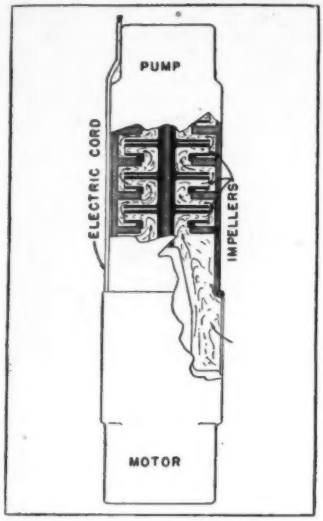


Figure 8: Both pump and motor are below the water surface in a submersible pump.

the whole assembly let down into the well on the end of a drop pipe. Motor and all is below water level. In this way the pumping mechanism is always filled with water and ready to pump. The motor is specially designed for this use. There is no problem of running a long shaft into the well to connect the motor with the impellers as with other designs—thus first cost and maintenance are reduced.

Even ahead of the jet-pump and submersible-pump development came a refined type of centrifugal pump with improved

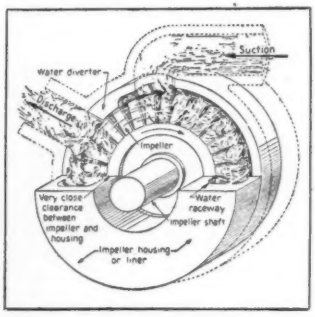


Figure 9: More of a turbine, than a centrifugal pump, this type will draw water up to 25 feet. Close clearances prevent its use where silt or sand is a problem.

suction (Figure 9). Instead of using several impellers to spin water to higher and higher pressure, it uses one impeller designed to spin the water several times to get higher pressure. This helps improve its pulling ability. It can pump some air and it is popular where water needs to be lifted 22 feet or less.

If you have learned how these pumps work, you understand how most pumps work that are on farms at the present time.

Pressure Tanks

But a pump is only part of a water system. For farm use the working companion of the pump is the *storage tank*. If you always used the same amount of water at all times you wouldn't need a storage tank. But your water system is supposed to supply everything from a leaky faucet to water enough for the kids to take a bath, while Mother fills the washer and Dad cools the milk. It is then that a storage tank acts as a "shock absorber."

Here is the way it works. When the tank is delivered to

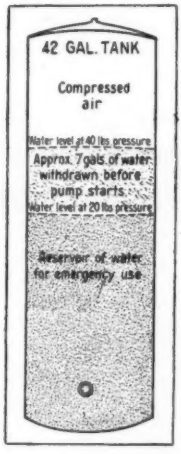

42 GAL. TANK
Compressed air
Water level at 40 lbs. pressure
Approx. 7 gals. of water withdrawn before pump starts
Water level at 20 lbs. pressure
Reservoir of water for emergency use

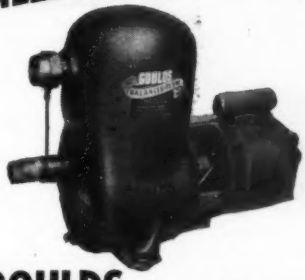
Figure 10: For proper operation, the pressure tank must contain air as well as water.

your farm it is full of air. Then the plumber connects the pump to the tank. As water is pumped in, the air is squeezed until it takes only about ⅓ of the space in the tank—water has taken over the rest of the space (Figure 10). At that point the pump motor is turned off automatically. We'll study about that device later.

From that day on there is a battle of water and air inside

ONLY GOULDS GIVES YOU THE PUMP THAT

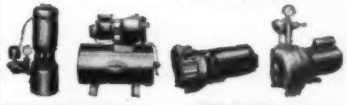
NEEDS NO TANK



GOULDS balanced-flow JET

It's the *only* complete water system that needs no tank! Open a tap — or two — or three — and your Balanced-Flow Jet instantly adjusts itself to deliver the *exact* flow of *fresh* water at each tap — within pump capacity. Quiet, trouble-free, only one moving part, *can't* lose its prime, saves on tank, fittings, installation time.

...QUALITY
Get a Goulds for ...DEPENDABILITY
...ECONOMY



MULTI-STAGE JETS — JET-O-MATICS
TANK MOUNTED SYSTEMS — DEEP WELL JETS

No matter what *your* water requirements—any capacity, any pressure, from *any* source—you'll find a Goulds just right for you! And you may be sure it's the finest of its type—backed by more than *one hundred years* of pump building experience. Be sure—get a Goulds.

See your Goulds Dealer

Your nearby Goulds dealer has the experience—and the *correct* Goulds pump—to help you plan a perfect water service. See him soon or, if you don't know his name...

Mail this Coupon Today

GOULDS PUMPS INC.

Dept. E-45, SENECA FALLS, N.Y.

Please send 20-page illustrated book telling how to select the correct water system. Include name of nearest distributor. Enclosed find 10c to help cover handling and postage.

NAME.....

ADDRESS.....

your pressure tank. When your pump stops pumping, the air in the tank presses back to the extent of 40 pounds pressure per square inch. Every time water is used the compressed air in the tank pushes water out through your plumbing system. After you have used about 7 gallons (if you have a 42-gallon tank) the pressure is down to 20 pounds. Again the pump starts and forces 7 gallons of water back in the tank and the pressure goes back to 40 pounds. So the battle of give and take continues.

There are times when both the pump and tank are working together to deliver water. That is when you are using more water than the pump can deliver. Then the tank helps supply water. The pressure may even drop below 20 pounds in their joint effort to "keep up."

If you are operating a large farm where water consumption is high, you may have a much larger tank. On the other hand, if you don't use much water at one time your pump may have a 1- or 2-gallon tank. You can't use more than about 3 to 6 cups of water before the pump starts with a tank this small. A few pumps have a small storage built into the pump and are called "tankless."

Where water demands are small, like for a small home or summer cottage you will find these small-storage types satisfactory. A centrifugal pump is usually used with this type tank because it is an easy pump for the motor to start; and as the pressure drops it will pump more and more water. This partly offsets the need for the storage tank.

Air Volume Controls

There is one bad feature about a storage tank—water running to and from the tank carries away a little air each time. If more air isn't added, there will finally be so little that your pump will start nearly every time you open a faucet. That is when your tank is "water logged."

You can drain the water and start over but that takes lots of time. Manufacturers have developed several means by which their pumps will replace the air. The device that keeps the right amount of air in the tank is called an *air volume control*.

There are three kinds of air volume controls. The simplest is the kind used mostly with deep-well piston pumps (Figure 11).

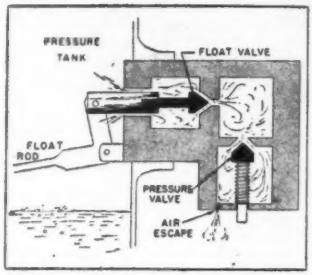


Figure 11: If there's too much air in tank, float opens valve, allowing some to escape.

Each time the pump operates it pumps some air into the tank. When there is too much air, it simply releases some of it.

Another kind is used on shallow-well piston pumps and some centrifugal pumps that can handle air. It looks like the deep well control but is entirely different. When water level gets too high, the float in the tank opens a valve on the air-volume control (Figure 12). The valve lets air pass through a pipe that connects the control with the suction side of the pump. There it enters the pump, passes through the pumping mechanism and into the tank.

When there is enough air in the tank the float on the control closes the valve and won't let the pump pull any more air.

Since some centrifugal pumps refuse to pump air—and others

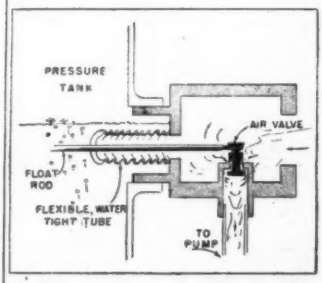


Figure 12: When water gets too high, this float opens valve to let air enter pump, through suction line, and be forced into the pressure tank.

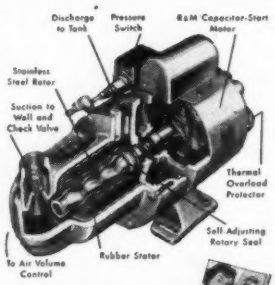
You get lots of WATER with this new, completely automatic

R&M SHALLOW WELL PUMP

Here is a truly amazing pump! No pistons or gears, no noisy belts, no reciprocating parts, no vibration. The only moving part, the stainless steel rotor, turns quietly in a cushion of rubber. Stands up for years even when pumping sand and silt.

COMPLETELY AUTOMATIC

Self-priming—starts instantly. Positive, even pressure. Completely automatic—starts when pressure drops to 20 pounds, stops when pressure reaches 40. Automatic overload protector, resets itself. Requires no care, no oiling, can't contaminate water. Easily installed; costs only a few cents a day.



Nine models up to 1200 gals. per hour. Tank-mounted types 250 and 350 g.p.h.

MAIL THIS COUPON FOR FREE FOLDER

ROBBINS & MYERS,
Springfield, Ohio, Dept. EF-54

Please send free folder on shallow well pumps.

Name.....

Address or Box No.....

Town.....*State*.....

do only a fair job—another type of control has been developed for them. It consists of a small chamber attached to the side of the tank. The chamber is divided into two parts by a rubber diaphragm. The section next to the tank is connected to the

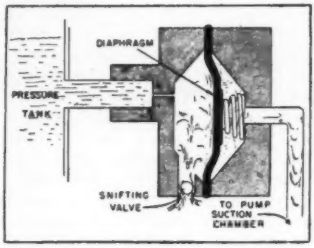


Figure 13a: When pump starts, diaphragm is drawn to suction line. Air enters chamber through snifter valve.

inside of the tank with a small pipe. The other section connects to the suction side of the pump and is kept filled with water. When the pump starts, it pulls the water out of the tube and the diaphragm is drawn to one side. (Figure 13a). One of two things happens on the tank side. If there is air in the tank at the level of the control it rushes into the tank side of the chamber. If there is water at that level, air is drawn from outside through a special valve.

When the pump stops, a spring forces the diaphragm back into place (Figure 13b).

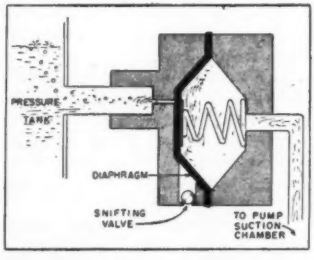


Figure 13b: When pump stops, spring forces diaphragm back, pushing air into tank.

The air in the tank side of the chamber feeds back into the tank.

Pressure Switches

The pressure switch on your water system is one of its most vital parts. Its job is to turn the pump motor off when the tank pressure reaches 40 pounds and to turn the motor back on when the tank pressure gets down to 20 pounds. It can be adjusted to other pressure combinations but don't mess with it unless you really understand what you are doing.

The pressure switch protects your tank from too much pressure—and it assures you of water under pressure by turning the pump motor back on before the water pressure gets too low. It also protects your motor from burning up in case it gets overloaded. That could easily save you an expensive repair bill.

Draw-down Controls

If you have a well that is weak, there is danger of your pump running for long periods without pumping much water. Then too, some pumps will lose prime when the water level lowers to where it pumps a little air. To overcome this problem a special draw-down control is used.

As long as there is plenty of water, the pressure switch controls your pump as usual. But when water is getting scarce, the draw-down control works with the pressure switch. It consists of two electrodes that are let down in your well to the lowest water level at which your pump should operate. As long as water is over the two electrodes a small amount of electricity passes between them when the pressure switch has the pump running. But when the water level in your well drops below one of the electrodes, the circuit is broken. Even though the pressure switch turns on, the pump won't start until the water level is high enough to cover both electrodes.

Kinds of Pipe

For many years *galvanized pipe* has been standard for pump installations on farms. Just before World War II copper pipe was being used by some farmers. After the War plastic pipe was introduced for the first time. Maybe you have wondered how the three compare for farm use.

As you know, galvanized pipe is very resistant to puncturing or crushing, will stand high pres-

MORE HAY PROFITS

A BUDGET-PRICED

DELCO CROP DRYER

HELPS YOU 4 WAYS

Yes . . . here's why a budget-priced Delco Crop Dryer helps you realize *more* from your forage crops. With a Delco you can . . .

1. Harvest earlier with less field loss.
2. Harvest when feed value is at peak.
3. Cut curing time as much as 40%.
4. Reduce spoilage in storage.

WHY *DELCO* IS BETTER

- Budget-priced! Costs less to buy, less to run.
- Resists fluctuating voltages on rural lines.
- Trouble-free. No pulleys or belts.
- Vibration-free. Dynamically balanced—bolting down unnecessary.
- Portable. Easily moved for drying, barn ventilation.
- Dependable. Made by the company whose electric motors power millions of home appliances.

A Delco motor, built into the hub of a rugged cast-aluminum fan, moves a big volume of air at minimum cost. Choice of single- or three-phase 230-volt motor. Write for free circular, name of nearest dealer.

DELCO PRODUCTS

Division of General Motors Corporation
329 E. First St., Dayton 1, Ohio

CHAN NEL LOCK pliers
TRADE MARK REG U. S. PATENT OFFICE
The most versatile tools on your bench

Look for the Channellock line when you're shopping for hand tools. Channellock pliers offer features that you can't get with other makes. And when you buy a Channellock plier, ask to see the full line—you'll find a style and model to do any job better.

THE PLIER DESIGN THAT OBSOLETES ALL OTHERS
CHAMPION DEARMENT TOOL CO.
MEADVILLE, PENNSYLVANIA

Only MASTER-BILT FRONT OPEN Milk Coolers offer LEKTRO-TEKTOR protection against CORROSION of WATER TANK

Literally adds years to the life of the fast cooling, easy loading MASTER-BILT Front Open Milk Cooler. Special magnesium bar diverts corrosion from sides and bottom of tank. Other features include easier cleaning . . . sealed condensing unit . . . economical operation.

Complete line includes immersion units (without Lektro-Tektor). See your dealer . . . or write for literature and prices.

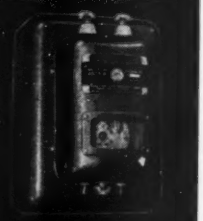
4-6-8-12 can models
EXTRA! Adaptable for piping milk direct to cans!

MASTER-BILT REFRIGERATION MFG. CO.
921 PALM STREET • ST. LOUIS 7, MO.

Electro-Line

PREFORMANCE PROVED CONTROLLERS

Bossie doesn't stray there any more. Not when your fence is charged with an Electro-Line *Performance Proved* Controller. It's a better electric fence because it's Electro-Line.



ELECTRO-LINE PRODUCTS CORPORATION
Saukville, Wisconsin

sures and soil chemicals have little effect. But deposits will gradually accumulate on the inside of the pipe if there is any mineral in the water. It will not stand freezing and will gradually rust through after a period of years.

Copper pipe and tubing does not accumulate deposits; it will stand several freezes, if it is of the soft type; can be assembled easily with a blow torch and solder, if you are careful to keep the joints clean; and will last indefinitely under most conditions. It is more expensive than galvanized-iron pipe, will puncture more readily, and cannot be used where cinders are present on account of acid corrosion.

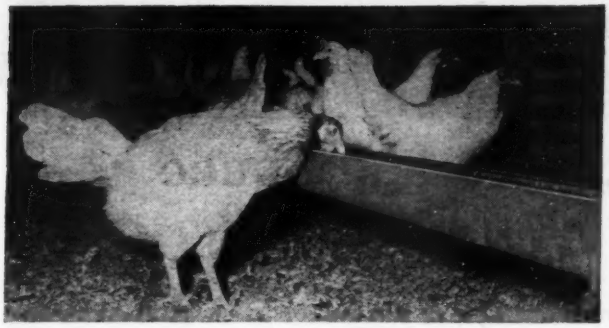
Plastic pipe and tubing is easy to install, will not accumulate deposits inside the pipe, and will stand several freezes. Its disadvantages are: It is fairly easily punctured; allowance has to be made for lengthening and shortening in hot and cold weather; and it can not be used for piping hot water. The life of plastic pipe is difficult to determine since it has been available for such a short time. It appears that it will last a long while if installed under the right conditions. The installed cost is about the same as for galvanized pipe.

Plastic pipe and copper pipe will deliver more water than the same size of iron pipe with the same pressure. This is especially true after iron pipe has been used long enough to collect enough deposits on the inside to slow water flow.

We can't hope to give you all of the information that would be helpful in one article. But if you understand what is presented here much of the other information about farm water pumps will "come easy."

It has taken a good many years to develop satisfactory water systems that will make water "run up hill." They still aren't as trouble free and automatic as nature's system of making water run down hill, but they are approaching it.

Total generation of electricity in the United States passed the *half-trillion* kilowatt-hour mark in 1953.



Facts About Poultry Feeders

By A. B. KENNERLY

Poultrymen, who are considering the purchase of an automatic feeder, may wonder about the cost of electricity for operating the equipment. The feeders must operate for several hours every single day. To get a specific answer to this question, the Texas A & M College agricultural engineers made arrangements with poultry raisers in Texas to keep records of the electricity used.

Records were collected at five farms on the operation of mechanical feeders in five broiler houses and in one laying house. Average use of electricity in the five broiler houses was 26.3 kwhr per thousand birds grown (a period of approximately ten weeks). This varied in the individual houses from 14.9 to 33.8 kwhr. At 2½c per kwhr, the average cost of operating the feeder for 5,000 broilers was $3.29 for ten weeks. In the laying house, the cost of operating the feeder for 2,000 hens was 30c per month per 1,000 hens.

Poultrymen using the mechanical feeders in broiler houses estimate a saving of at least three-fourths of the labor of one man for each 5,000 chick house. Records kept of costs showed that the net annual cost of using mechanical feeders is $117.16 for each 5,000 birds, when growing four broods a year. This includes 10 percent for depreciation on an investment of $1,000, repairs at 3 percent, and $13.16 per year for electricity and interest at 6 percent. Against this, annual depreciation on $350 worth of feeders, where hand feeding is used, repairs, and interest were deducted.

The addition of an overhead bulk feed storage bin for 5,000 broilers is also a good investment. Enough can be saved on labor and buying feed in bulk to offset the annual cost of owning and operating the automatic feeder and make an additional saving of $125.

The total net saving of automatic feeders and a bulk feed overhead bin was $125 plus three-fourth of one man's labor when four broods of 5,000 chicks were produced in a 5,000 chick house.

Lightning bugs are efficient producers of light, but it would take 1,000 to 2,000 of them to illuminate a room to the same intensity as the light from one candle.

Doing things by halves is worthless; it may be the other half that counts.

UNLOAD FOR LESS!
Flinchbaugh
WAGON UNLOADERS
1.
MAGIC CARPET
Canvas Type
You just can't overload this unloader. Loads loosen as they slide off... use less power. And no unloader will do the job faster! Our exclusive non-spring roller unit increases canvas life 200 to 500%. Recommended for all size loads and years and years of trouble-free operation.
2.
BIG SAMSON
False End Type
Comes complete with all fittings
Another inexpensive unloader, the Big Samson handles loads up to 5 tons with ease. It uses the proven Flinchbaugh power unit with adjustable speeds and operates with any size motor. This light aluminum cased slip-on power unit weighs much less than many more expensive types. Special alloy-steel heat-treated chain pulls false end—lasts the life of the unloader!
FREE FOLDER on both types. Write today for Catalog No. 35.
THE Flinchbaugh COMPANY

Plan Your Storage Space

Then Your Kitchen Will Work For You

The lack of adequate storage space is a problem to many homemakers. The Arzt and Billard families of Connecticut, when building and remodeling their homes, made certain this problem would not confront them. Not only do their homes have ample storage space throughout, but their kitchens, in particular, have well planned, well arranged storage cabinets and drawers. And they provided plenty of room for their electrical equipment.

Mr. and Mrs. Paul Arzt, Jr. of Rockville spent considerable time planning their kitchen and combination dining-play area. They built their new home about four years ago. You enter from the breezeway into a tiled and papered dining-play area. Between this room and the kitchen there is a wall that is almost solid with cabinets and drawers. There is a counter in it, and an opening through which things can be served from the kitchen. Here, dishes, silverware, and sewing supplies are stored. Below the counter there are cabinets and drawers for extra storage. Three cabinets are for the children's playthings, one each for Fred—age 12, Dorothy —6, and David—3.

Entering the kitchen, you are again impressed with plenty of storage facilities. The work centers are arranged in a U shape with one of the three major pieces of equipment in each. Above and around the sink, range, and refrigerator, are plywood cabinets for all supplies. On the wall opposite these work centers there is a continuous cupboard for small appliances, cleaning supplies, laundry needs, utility materials, and sewing findings.

In the refrigerator center there is a linoleum-covered, sit-down, lap board. This is used for peeling vegetables and canning and freezing preparations. It also serves as a lunch bar for children. In the cabinets and drawers are refrigerator and freezer supplies, handy to the source of preparation. In the mixing unit above this refrigerator-freezer preparation area, we find cupboards equipped with flour and sugar dispensers, and measuring and mixing supplies. Lazy susan cabinets, in the corner, contain ingredients, above the shelf, and utensils, below. These are all handy to the mixer, which has a seat of honor on the counter.

A clean-up area closes the end of the U. Its sink was set in at a height convenient for Mrs. Arzt and a light provided, overhead. Below the sink are vegetable and fruit storage bins, and two metal bread boxes.

The third side of the U-shaped kitchen has the electric range with its needs located around it. Here again, in the corner, are rotating shelf cabinets for dishes and cooking utensils. Beside dishes in the upper one, a wide top shelf holds the electric percolator and corn popper. Above the range are cereals and supplies used in cooking. The shelves in this cabinet are graduated in size. Directly above the range is an exhaust fan to carry away cooking odors.

Mrs. Arzt is so impressed with her electric range that she wonders why anyone would put anything else in a new home. It is much cleaner and has no smell, as her old oil stove had.

Above: Making cookies with the mixer is an important activity in the Arzt kitchen. **Right:** Mrs. Arzt has two helpers, Dorothy and David as she prepares carrots for the freezer. This pullout lapboard also is used as a lunch counter for the children.

Another electric appliance in this well-planned kitchen is the automatic washer which hides behind the refrigerator. Fitting into a narrow nook, it backs up against the bathroom wall, making plumbing no problem. The laundry supplies are in a cupboard only a step away.

The chest type freezer in the basement was a new appliance added about two years ago. Mrs. Arzt used to can over 300 quarts of fruits and vegetables, but now, with the freezer, she only cans pickles and tomatoes. As a trial, before they purchased the freezer, they rented a locker in a plant six miles away. They found it was inconvenient to get food to the locker and they didn't have things they would have had if they had a freezer at home.

True to most families' experiences, the Arzts find that their freezer is not big enough to hold all they would like to put in it. Corn and beans are their favorites of the many frozen vegetables. They purchase some frozen foods by the case, to take advantage of savings in cost. Meats and baked goods also find a place in their freezer.

All in all, it would be hard to find a more convenient set-up for a homemaker. There is one little item that doesn't show much, but which helped a lot in the planning. Ceiling heat permitted the Arzts to use every bit of wall space without having to work around registers and radiators.

David Arzt checks to be sure his mother, is preparing things according to directions. The cabinet above holds supplies used at the range. Notice the opening through which things may be passed to the dining area and the revolving shelf cabinet in the corner.

Mrs. Albert Billard of Hebron is another person who planned for plenty of storage space in her remodeled U-shaped kitchen. Considerable time was spent in penciled drawings of plans before actual construction began several years ago.

In her remodeled kitchen, the cupboard, which holds refrigerator supplies, is placed so that Mrs. Billard can work directly from refrigerator to cupboard without reaching around a door. Next to this is the mixing center with staggered shelves to

Right: Peter helps his mother, Mrs. Albert Billard, load the automatic machine. Notice the platform, which raises the washer for ease of loading. **Below:** Every bit of storage space has been used in the Billard kitchen.

hold supplies. These are movable to adjust to any change in size of supply boxes.

An innovation, beside the sink, is a milk drawer which receives the milk from outside the house. From the drawer it is easily transferred to the refrigerator. Above this is a garbage drawer with an open trap top, permitting peelings to be dropped from the shelf directly into the pail. The hinged drawer makes it easy for removal of the pail.

The trap to the sink is in the basement, thus leaving ample room for the kitchen stool under the sink. Beside it, a drawer with hooks and a lazy susan cabinet hold cooking utensils.

In the hallway leading to the kitchen is the automatic washer. It is on a raised platform, which makes for easier handling of clothes in a front loading machine. Cupboards, above, hold laundry supplies. Mrs. Billard says, "The automatic washer is the best friend I have in keeping clean clothes for my three growing boys, Roger 7, Tommy 6, and Peter 3. I never appreciated anything so much as when my washer was hooked up again after being disconnected during remodeling."

Both families have found well arranged, planned storage space an asset to full benefits and easier work with various electrical appliances. It also means neater, more attractive kitchens.

Storage space for such equipment as irons, corn popper, grill, and vacuum cleaner is provided in the continuous cabinet on the wall opposite the U-shaped work center in the Arzt home.

Home Pasteurizer—Quick—Safe

By M. E. MARTIN

Most every mother knows that milk is nature's best food. But unless it's pasteurized, milk may be one of nature's best carriers of disease. Nowadays, there is no excuse for any mother running the risk of serving raw milk to her family when it is so quick and easy to pasteurize it at home.

The electric home pasteurizer is the perfect solution for families using raw milk. They come in one or two gallon sizes. Mine, which I consider the ideal family size, holds four quarts. It is very simple to use. As soon as the milk comes into the house, I strain it into the four quart container. I then place this in the pasteurizer, set the control, and plug the cord into a convenience outlet. During the processing time, which is an hour and fifteen minutes, I'm free to go about my other duties. A bell will signal the completion of the pasteurization.

I then disconnect the cord, lift the pail of milk out of the pasteurizer, and set it into the sink, which has been filled with cold water. It is important to cool the milk quickly. When the milk is cold, I pour it into four sterilized bottles, which I place in the refrigerator.

For years I took time each morning to boil the baby's milk, (there always seemed to be a baby in the family) and worried about the raw milk which the rest of the family drank. Now I pasteurize it all, and enjoy peace of mind. Any family used to raw milk will notice a slight difference in taste when the milk is pasteurized. But they will soon get used to it. My own children rebelled at first, and my husband said he would never like it. But, within a few days they were all drinking it and liking it. And, after my husband cultivated a taste for the pasteurized milk, he wouldn't touch a drop of raw milk.

There are several methods of safeguarding milk at home. Information may be obtained by writing to the Bureau of Animal Industry of the United States Department of Agriculture, or to your own State Department of Health. From my own experience, I know that no other method compares to the home pasteurizer for quickness and efficiency. I consider it my most valuable electrical appliance, and just the thing for busy housewives who want to safeguard their family's health. Incidentally, my pasteurizer has been in use, daily, for ten years, and so far without trouble or replacements.

Something WONDERFUL

has happened in Refrigerators

Classic styling . . . Sparkling interiors that hold more, do more . . . yours *now* in this 1954 HOTPOINT SUPER-STOR Refrigerator-Freezer!

Chances are you've often thought to yourself, "*What do I want in my next refrigerator?*"

Hotpoint *asked thousands of women this question—then designed this new Hotpoint Super-Stor to include every practical modern convenience they could think of!*

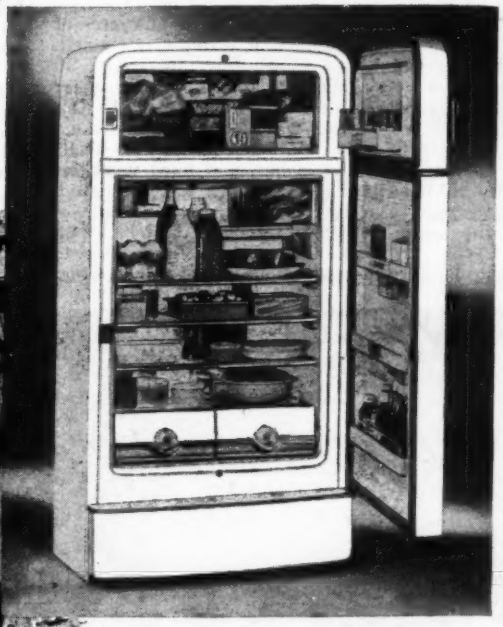
Outside, you'll find new beauty you'll love all the planned 25 years of your Super-Stor's life.

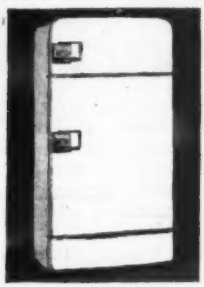
Inside, *advanced features galore! Shelves roll out. Drawers glide out. A Meat-Mart swings out.*

There's a special butter keeper; built-in foil dispenser *plus* your giant separate food freezer. *Of course, defrosting is automatic!*

Yes, something wonderful has happened to refrigerators. Why not have it happen to *you*—soon?

Dealers are listed in most classified phone directories.





DeLuxe Hotpoint Super-Stor . . . Available in two-door or single-door models. Or choose from seven other beautiful new 1954 classic-styled Hotpoints!

Guaranteed by Good Housekeeping

Enjoy "Ozzie and Harriet" on TV and Radio Every Week

Hotpoint

Changes your viewpoint . . . automatically

Hotpoint Co. (A Division of General Electric Company), Chicago 44.

Ranges • Refrigerators • Dishwashers • Disposalls® • Water Heaters • Food Freezers • Automatic Washers • Clothes Dryers • Cabinets • Air Conditioners • Dehumidifiers

The Lucky Twins

By EVELYN HANSEN

It's fun to dream a little about what would happen if we should win one of the big "give-away" contests. A new car, a trip abroad, new household equipment—there always seems to be some kind of a pot-of-gold at the end of a rainbow few of us ever see.

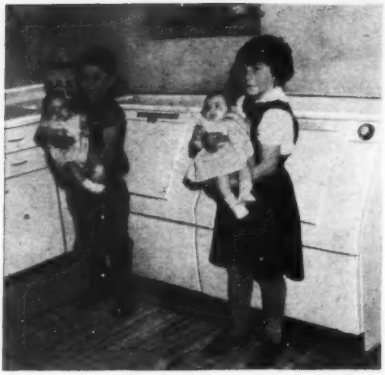
Have you ever known anyone that woke up one day to find themselves in such a spot? Mrs. Cecil Coburn of Preston, Idaho, does—she did it herself!

It all happened last September twenty-third, "Blessed Event Day". The Westinghouse Electric Corporation had announced that parents of twins born on that day would receive a present of a second set of twins—one of their famous automatic clothes washers and one of their dryers. As a result, Mrs. Coburn received two sets of twins the same day, Sheldon and Shelley, and the laundry twins.

Mrs. Coburn was used to the former—she already had a set of eight year old twins—but the latter was something different. However, with a family of ten children, it didn't take long to convert to the new method of handling the laundry. What's more, the new arrivals had a triggering effect on the household.

Before winning the laundry twins, the family wash was really a chore. As Mrs. Coburn had no utility-room, the washing was done in the kitchen. Each washday the washer and tubs were moved across the room to the sink to provide water supply and also a place to drain the washwater. An old coal range was used to provide hot water from a boiler set on top of the range. Heating water in an open vessel really steamed up the house during the winter, when the house was closed up, and carrying the hot water to the washer was always a strain.

Finding a place for the automatic washer and dryer necessitated remodeling the kitchen. To get the full benefit from the new equipment, a constant source of running hot water was needed. To answer this purpose, a 50 gallon table top electric water heater was installed. With this Mrs. Coburn no longer needed the large coal range with all its soot, ashes, and hard work. So an electric range was purchased. How thrilled Mrs. Coburn was with her remodeled kitchen with all the electric equipment to make household tasks easier and so much more enjoyable!



The Coburn twins! Paul and Pauline hold Sheldon and Shelley. The laundry twins can stand by themselves.

Washday is no longer a day of drudgery in this home. Mrs. Coburn isn't conscious of the task now, for while the automatic washer is doing the washing and the water heater is heating the water, Mrs. Coburn has an opportunity to enjoy her family. While the electric dryer is drying her clothes, Mrs. Coburn has time to do the baking that her children and her husband enjoy so much. Nowadays the family comes home on washday to an aroma of hot rolls for dinner.

The children didn't like being left out of all the fun of operating the new equipment. Consequently, Mrs. Coburn waits to wash some of the clothes until the children are home from school, or on Saturdays. The laundry can be done at any time of the day or evening and in all kinds of weather. The lifting of heavy, wet loads of clothes has been eliminated, and the ease of frequent washing cuts down the need for many extra clothes for fast growing children. With the electric clothes dryer it takes less time to get washed clothes dry.

Mrs. Coburn used to think automatic washers and electric clothes dryers were for small families only. That was before the dual blessed event. Now that she has been using both pieces of equipment for several months, she says that the equipment is for all homemakers, including ones with large families.

Automatic washers and dryers are not just designed for small families, according to Mrs. Coburn. Her family, pictured here are (left to right): Lenore, Mrs. Coburn, Sheldon, Paul, Pauline, Shelley, Allene, Clide, Enid, and Bruce.

New! Wonderful Round Bobbin
SINGER Economy Portable!

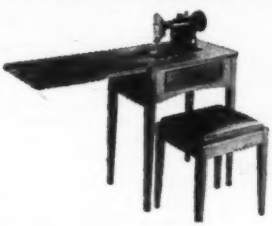
Only **$114.95**
complete with case

- **Famous SINGER Sewing Course—15 hours of personal instruction—at no extra cost!**
- **Down payment—only $11.50.**
- **Generous trade-in allowance on your old machine.**
- **Easy budget terms.**

Yes, now you can own a brand-new SINGER* Sewing Machine—*a round-bobbin* SINGER—for just a little over $100! And the terms are so easy . . . why wait?

It's the smoothest-stitching, most dependable kind of machine you can buy. Has all sorts of exciting features you usually get only in much higher-priced models:

- **Automatic bobbin winder.**
- **Hinged presser foot—handles heavy fabrics as smoothly as light ones.**
- **Numbered tension dial—easy to adjust.**
- **Sews forward and back.**
- **Does many lovely fashion stitches—without attachments.**
- **Comes in smart brown and beige carrying case.**



Same fine machine also in attractive cabinet model

$149.95

S* **Ask for a *free home trial* today!** No cost, no obligation. See for yourself what a wonderful machine this is—what a thrifty buy! Just phone or write your nearest SINGER SEWING CENTER.

SEND FOR FREE ILLUSTRATED FOLDERS!

SINGER SEWING MACHINE COMPANY
Department EF-5
95 Liberty St., New York 6, N. Y.

Please send me free, illustrated folders on all 3 types of SINGER Sewing Machines.

Name_____

Street_____

City_____

County_____ **State**_____

SINGER SEWING CENTERS

There's one near you to serve you

*A Trade-Mark of THE SINGER MANUFACTURING COMPANY.
Copyright, U.S.A., 1954, by THE SINGER MANUFACTURING COMPANY.
All rights reserved for all countries.

Now you can stop worrying about
RAW MILK DISEASES

Have SAFE Pasteurized Milk with HOME PASTEURIZERS

Milk from tested cows, handled with the best of care, may still contain germs causing undulant fever, typhoid fever, polio and other diseases. Home-Health Pasteurization destroys these harmful bacteria but doesn't destroy nutrition of milk or spoil its flavor. You can pasteurize milk in your own kitchen.

ONLY HOME-HEALTH OFFERS TWO, EASY TO USE, SIZES

FOR LARGER FAMILIES. A two gallon pasteurizer that's compact and light-weight. Positive bacteria kill without loss of flavor. Dual heat principle. Just turn it on . . . it's automatic. Laboratory tested.

FOR SMALLER FAMILIES. Popular one gallon size gives same positive pasteurization. Accurate timer-thermostat. No watching or stirring. Convection Heat Principle. Both models guaranteed for one year . . . Underwriters approved . . . Accepted for advertising by Am. Medical Assn.

FREE FOLDER Get the facts on milk-borne diseases and their prevention through pasteurization. Write

WATERS CONLEY COMPANY
Dept. E Rochester, Minnesota

Tell your dealer you saw it in ELECTRICITY ON THE FARM Magazine

Mrs. Summerlin is being visited by her rural neighbor and daughter-in-law, Madeline. This all purpose kitchen with its electric range, refrigerator, dishwasher, and water heater is the center of the home. There's room for everything, including an oil-fired, automatic forced warm-air furnace.

Modern Basement Kitchen

By WILLIAM GILMAN

The farm kitchen has always been the comfortable gathering place for a chat and cup of something warming. However, you can't say the same about the basements of most farm homes.

Yet, Mrs. Harold W. Summerlin's basement-kitchen in West Pelham, Mass., is just about as far as you can imagine from the old-fashioned farm cellar. It's the first floor of a small home. Because of its uses, you can call it either the basement or the kitchen—take your choice.

As central heating, electric washing machine, and the like arrived through the years, they prompted plans for a modern, all purpose room.

With insulation, floor and wall coverings, the basement has grown more liveable. What has happened here is a return to the old-fashioned farm kitchen, but in a modern, electrified way. It has also become the workshop and rumpus room. It may be an answer for the growing number of folks, like Mrs. Summerlin, who want to take it a little easier in later years.

A stairway leads up to the two main rooms above. One is a combination living room with two studio-type beds facing the television set and the other is a combination den and bedroom.

Warm air furnaces in older days required installation in a cellar beneath the rooms to be heated. The furnace shown here has warm air produced by an oil-fired gun type burner and circulated by a blower. Thus, it can be on the same level with rooms being heated. This type of furnace has a filter and humidifier for cleaning and conditioning the air.

Although the room is only 16′ x 28′, it serves its many purposes well.

only Monarch has this stoopless oven (plus regular oven)

This amazing Monarch "Color-Vu" Electric Range has a patented "deep-heet" oven built into the range top. It's perfect for vegetable dinners, baked beans, sauerkraut and spare ribs, fowl, baking biscuits and cookies—and as a warming oven. No stooping. Just lift the cover and there's your food! Also full-size regular oven.

See your Monarch dealer or write
MONARCH RANGE COMPANY
7043 Lake Street Beaver Dam, Wis.

Protect Your Rugs

Wool rugs and carpets may be severely damaged by clothes moths and carpet beetles in summer as well as winter. Careful, thorough cleaning plus periodic treatment with an insecticide is the way to protect your floor coverings. Here's where the vacuum cleaner serves as a protective agent.

Regular use of a vacuum cleaner prevents lint and hair from accumulating and offering extra food for these insects. It may also remove some of the insects and their eggs. These rug destroyers like to feed in places under heavy furniture where it is difficult to clean, rather than in the open where they are exposed to regular cleaning, light, and movement. Thus it is important to clean under this furniture regularly and to rotate the rug.

Entomologists of the USDA recommend a 5 per cent DDT oil solution as a protective spray for rugs and carpets. It should be used every 12 or 18 months. A 9 by 12 rug of average weight will need 1½ to 2 qts. of spray. Here again, the vacuum cleaner can be of service. The sprayer attachment projects a fine spray, with force, which penetrates into the rug or carpet. When spraying, give special attention to parts of the rug that are under the piano, sofa, bookcase or other heavy furniture. The rug around heat registers, or under radiators, serves as an ideal breeding place and thus needs extra attention. The edges of wall-to-wall carpeting also need extra spraying. Animal or wool pads under rugs, that are untreated, should be sprayed on both sides.

Just a little care will protect the rugs and assure longer wear.

A good vacuum cleaner is your best tool for protecting rugs.

A Calorie Counter Luncheon

Do you have trouble planning a luncheon when you are entertaining, especially when everyone is calorie conscious? Parties and party foods are fun, but often hard on the waistline. But all parties don't have to be!

Here's a suggestion of a luncheon for guests that are calorie counters.

Chicken Soup
Party Peach Salad
Crisp Rye Wafers
Angel Food Cake
Tea or Coffee

This slim-down luncheon, including two wafers, comes to only 350 calories and still provides the essential proteins, minerals and vitamins needed for good health. And, besides being so healthy, it is a luncheon that is easy to prepare. Except to heat the soup and make the tea and coffee, everything can be prepared the day before.

Make your favorite soup or use canned chicken soup. The angel food cake may be from your own recipe or one of the

DREAMING OF HOME IMPROVEMENTS?

Make a
NEW MYERS WATER SYSTEM
the Heart of Your Plans

Planning to add a bathroom? Remodel your kitchen? Get a dishwasher or automatic laundry equipment?

Whatever your plans, be sure you don't overload your water system. Let your nearby MYERS dealer check your ideas. He can save you expensive changes later on.

Myers Ejecto Water System

Myers Bulldozer Water System

Myers Deep-Well Water System

Myers Shallow-Well Reciprocating Water System

MYERS WATER SYSTEMS

THE F. E. MYERS & BRO. CO.
345 Orange Street
Ashland, Ohio

Qwik-Way

Home Milk and Cream Pasteurizer

CHECK THESE OUTSTANDING FEATURES

- Pressure Vacuum principle assures pure, safe pasteurization equal to best commercial standards.
- Pasteurizes up to 2 gals. of milk in a few minutes.
- Vacuum cooling method retains natural milk flavor and needed vitamins.

QWIK-WAY is fully GUARANTEED.

NO RE-BOTTLING

QWIK-WAY is the only unit that Pasteurizes, Vacuum Cools, Stores and Dispenses with one container

See your dealer or WRITE FOR FREE FOLDER—DEPT. 11

ELECTRONIC SPECIALTIES CO., INC.

Chicago 10, Illinois

PIONEERS IN HOME PASTEURIZATION

DON'T LET RUSTY WATER RUIN WASHDAY!

SEND FOR THIS BOOKLET

This booklet shows how you can have crystal-clear, palatable water in your home. Diamond Iron Removal Filters take out all iron and other foreign matter. Costs little — worth a lot.

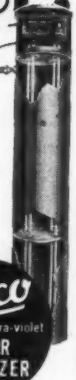
Oshkosh Filter & Softener Co.
Oshkosh, Wisconsin

Safe Water!

FROM SPRINGS OR WELLS

Ultra-violet sterilizer assures 100% destruction of dangerous bacteria

The Sepco all-electric Ultra-violet Sterilizer purifies even badly polluted water to U.S. Public Health Service standards. Guards against water-borne intestinal disorders, dysentery, typhoid, infectious jaundice, colitis—even polio. Entirely automatic. Uses standard electric current. Ideal for rural homes, farms, motor courts, camps, restaurants, bottlers—wherever water comes from an unprotected source. Made by the oldest producer of electric water heaters. *Free booklet.*



√ Uses no chemicals
√ Adds no taste or odor

DEALERS!

Write for details of this far-reaching health-protecting development

SEPCO CORPORATION, Pottstown, Pa.

Sepco Ultra-violet WATER STERILIZER

easy-made, prepared mixes. Following is the recipe for the salad.

Party Peach Salad

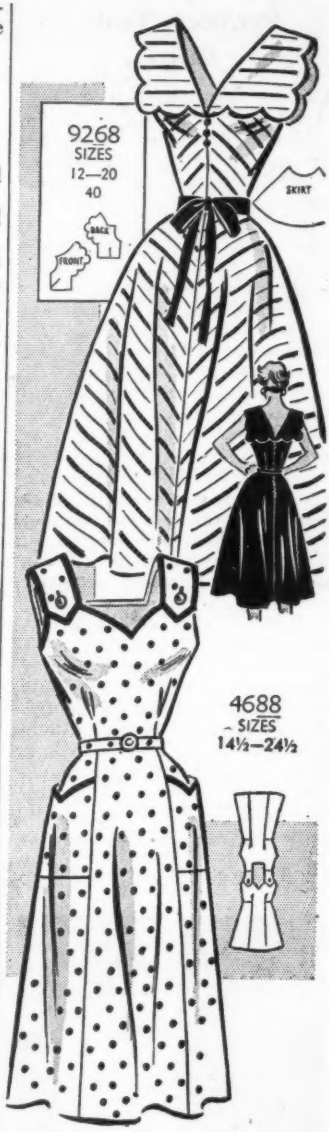
1 package lemon gelatin
1 cup hot water
¾ cup cold water
¼ cup lemon juice
2 cups sliced peaches, well drained
1 cup cottage cheese, well drained

Grease a 4 cup mold with salad oil. Add hot water to lemon gelatin and stir until dissolved. Stir in cold water and lemon juice. Pour 1 cup of gelatin mixture into oiled mold and chill, in refrigerator, until slightly thickened. Let the rest of gelatin stand at room temperature. Arrange peach slices in thickened gelatin layer. Add rest of gelatin, and chill until firm. Keep chilled until ready to serve. At serving time, turn out on lettuce and spoon cottage cheese around mold. Garnish with a maraschino cherry, if desired. Make 8 servings.

Keep the New Look

The gleam of newness can be a lasting characteristic of your electric range by giving it just a little careful, periodic cleaning. You'll find a wipe in time will save nine rubbings later. Those spills and spots are much easier to remove as they occur by wiping with a clean, sudsy cloth and following with

For stubborn soil, the reflector pan, or drip cup, under the unit can be removed.



Fashions to Sew

9268—Simplest of lines, smartest of fashions! Collar is in one with bodice, no side-seams in skirt. Misses' Sizes 12-20; 40. Size 18 takes 4½ yards 35-inch fabric.

4688—So flattering, so easy-to-make! Proportioned to fit the short, fuller figure! Half Sizes 14½-24½. Size 18½ takes 3¾ yards 35-inch fabric.

Send THIRTY-FIVE CENTS (in coins) for EACH pattern to ELECTRICITY ON THE FARM, 233, Pattern Department, 243 West 17th Street, New York 11, New York. Add FIVE CENTS for EACH pattern for 1st-class mailing. IN CANADA: 60 Front Street, Toronto, Ontario.

a rinse cloth wrung out of clear water.

An ounce of prevention makes the cleaning task easier. Every spill avoided means one less to wipe up. A way of avoiding these spills is to use low temperatures to prevent boiling and spattering. For example, meat roasted in a 325°-350° oven will not spatter as it would at a higher temperature. The right size pan is also essential in preventing spillovers.

The oven, like the top of the range, is improved in appearance by regular wipings. Crusted spots or spatters that refuse to be removed by wiping may be loosened by using ammonia. Mix

The deep well is as easy to clean as it is to use.

equal parts of water and ammonia in a bowl or enameled pan and place on a shelf in the cold oven. Overnight the fumes loosen all stubborn spots. In the morning, wipe the oven with a sudsy cloth, followed with a rinse cloth—the spots and spatters disappear.

While cleaning out the oven, remove shelves and soak in a sink or dishpan. Spills on the shelves will be loosened during soaking.

The warming oven, separate broiler, and storage drawers should not be forgotten during range cleaning time. If every part inside and out is given regular attention, it will retain its original appearance.

Food spills on the electric unit or grease spatters on broiler unit, will burn off while it is hot. When range is cold the reflectors and drip cups may be removed and washed in hot soapsuds. Do this regularly to retain the new gleam.

As for the deep well cooker, use the vacuum cleaner hose without an attachment to remove crumbs and bits of dirt that settle in the bottom well. A non-insulated cover may be washed in hot soapy water. If yours is insulated, wipe with a clean soapy cloth.

Found Facts

Use plain biscuits as a topping for meat and vegetable pies, or use them as a base for creamed vegetables, meat and sea foods. "Dress up" plain biscuits by adding bits of green parsley, cheese, sausage meat, or onion to the dough.

* * *

Blanching is a "must" when preparing vegetables for freezing. Blanching retards enzymatic action—checking deterioration, improving color, and preserving vitamins in the frozen product.

* * *

If your main baking problem is bottom crust browning, try using a dull finish aluminum or glass pie plate.

* * *

Make it a habit to keep a file box of the washing instruction tags that come with the things you buy. Or attach a cardboard box to the side of your washer to house such tags. That way, you'll have them under-your-thumb when washing time comes around.

* * *

There's nothing in the world that revives a room like freshly laundered curtains—and nothing that wilts it more quickly than curtains in need of a bath.

* * *

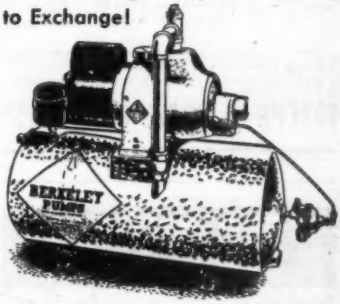
Dry out damp basements by placing a fan to exhaust moist, humid air out of a basement window, pulling in dry, fresh air from another opened window or door.

* * *

There is actually less shrinkage when a blanket is laundered in an automatic washer and dryer than when it is washed by hand and hung on the line to dry! Blankets can be dried in a dryer in 15-25 minutes.

makes 'em disappear

These new Berkeley Water Systems are quickly and easily converted from Shallow to Deep Well pumping in the event of a receding water level. Nothing to buy. . . . Nothing to Exchange!



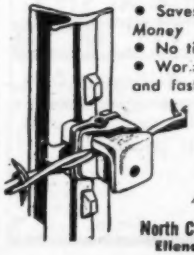
This complete Tank Mounted Convertible Water System is available in ¼, ⅓, ½, ¾ and 1 H.P. Models with capacities to 2000 G.P.H.

WRITE FOR BULLETIN 512

BERKELEY PUMP COMPANY

829 Bancroft Way, Dept. A, Berkeley 2, California
556 Tift Ave., S. W., Dept. A, Atlanta, Georgia

Build the best *Electric fence* with *RED SNAP'R* insulators



- Saves—*Time-Work-Money*
- No tie wire needed
- Works on all types posts and fasteners
- Less breakage; made of strong molded red plastic; will last for years.

Ask your dealer or write to:

North Central Plastics, Inc.
Ellendale, Minnesota

VOGEL
PATENTED

FROST-PROOF HYDRANT

- Will never freeze when properly installed.
- Running water available all year 'round:
  To reduce fire hazards
  To supply livestock needs
- Over a million Vogel Frost-Proof Closets and Hydrants have been sold.

The handle in this position shows you that the water is positively shut off. A leaking hydrant is sure to freeze in winter.

For information, see your nearest Plumbing Supply House—or if you write us direct, state the county in which you are located.

JOSEPH A. VOGEL CO. WILMINGTON 99 DELAWARE

KEEP ANIMALS IN . . . OUT

WITH SHOX-STOK
ELECTRIC FENCE CONTROLLERS

PRICED AS LOW AS $12.95

SHOX-STOK Inc.

609 Main St., Wellington, Ohio

Send for folder and name of nearest dealer.

Name.....
Address.....
P.O..... State.....

for Junior Partners

Hi!

Water flows through a pipe—just like electricity flows through a wire. You usually hear it the other way around! Regardless of that, the flow of the two is similar.

Ever hear of water over the dam? That's something that's gone. Right about now you might think of it. There's been a lot of talk about water earlier in this issue. Poor water that was made usable—still water that was made to flow. But poor or good—still or alive—it was water. That's one of the few substances without which we can't live.

In dry farming areas, farmers make a crop every other year. The year between is used for gathering moisture with which to make a crop!

Now, let's face it! Electricity is not a crop. It's a tool. When we turn on a light, we expect there will be light. And we don't want to wait for a season—be it a minute, or a year—while it regathers itself. Electric farming isn't dryland farming. When you push a switch, it should work now—not a year from now.

How does electricity work on your farm? Good, poor, or just sort of lackadaisical? If your answer is the first—good! If it's otherwise, read this month's demonstration article. Therein you may find the reason.

Kenneth V. Anderson

The Fat Wire and the Thin Wire

A Demonstration of Cause and Effect

By R. T. SCOTT

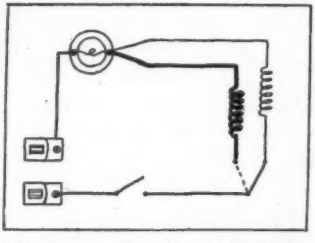
If you try to pour the contents of a one quart saucepan into a teacup, you will spill and waste some of its contents. This is what happens when wiring is not adequate. Although electric current does not spill over, it is wasted and lost before it gets to your lights and equipment.

Here's the demonstration board. Cleats are used to hold the two coils of wire.

If wires aren't big enough to carry the current electrical equipment needs, the equipment doesn't operate as efficiently as it should. Motors are sluggish. Lights do not burn as brightly as they should. Here's a piece of demonstration equipment you can build to show the effect of two different size wires on the operation of a light. This is the story of the "fat wire" and the "thin wire".

You will need the following materials:

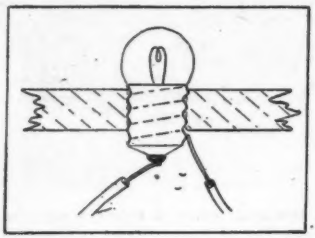
100 feet—#18 bell wire
100 feet—#24 enamel covered wire
1—single-pole double-throw switch
1—single-pole single-throw switch
1—flashlight bulb (single cell)



This diagram shows the wiring. Heavy line represents 100 feet of No. 18 bell wire—other is 100 feet of No. 24 wire. From lower battery clip, wire goes to single throw switch. This is used to shut off current. Next, wire goes to double throw switch, used for selecting fat or thin wire. From there, current feeds through wire selected to the lamp and on to the second battery clip, completing the circuit.

1—flashlight bulb socket
1—dry cell battery (1½ volts)
connectors, a mounting board, and dowels or scrap lumber to mount coils of wire

The wiring of the board is simple, as you can see by looking at the diagram. If you wish to eliminate the single-throw



If you have no socket, drill a hole for the base of the bulb to screw into. Connect wires to base with solder—one to the shell of base, the other to end contact as shown.

switch, you can turn the board on and off as needed by disconnecting the battery wire. The double-throw switch permits you to include either the 100 feet of bell wire or the 100 feet of #24 wire in the circuit.

You can make a socket for the flashlight bulb, if desired, by drilling a hole, that is slightly smaller than the flashlight bulb base, in the mounting board. Screw the bulb into the hole just as you would into a socket. Then solder one wire to the side of the bulb base and another to its bottom connection. The two wires are used to connect the bulb into the circuit as shown—one side connected directly to the battery, the other side connected to both coils of wire.

The finished unit shows what happens when you light the lamp through the fat, bell wire, circuit (adequate wiring) and what happens when you switch to the thin, #24 wire, circuit (inadequate wiring). With adequate wiring the lamp burns brightly. With inadequate wiring the lamp is dim.

If seeing is believing, people will believe you when you show them what happens to the light when you switch from the "fat wire" to the "thin wire". Power suppliers deliver usable electrical energy to our homes and our farms. We must make sure that our own circuits are able to carry the energy to the point where we expect electrical equipment to work for us. The only way that we can do this is by using wire that is fat enough.

A Pencil Sharpener

How would you like to sharpen 100 pencils for a community card party? It wouldn't bother you a great deal if you had a pencil sharpener like the one Jack Oliver built.

Jack, whose home is in West

It was a simple matter for Jack to sharpen a hundred pencils with his electric pencil sharpener. Note the off-on switch on front of case.

Point, Indiana, made an electric pencil sharpener as a 4-H project. He had often thought of doing so and had discussed it with his Vo-ag teacher. However, there appeared to be a little more to it than just welding a pencil sharpener onto a motor shaft.

Still, when you've got an idea, you have a hankering to go ahead with it. Jack had acquired an old mixer motor in a trade, and, when he caught a glimpse of an electrical pencil sharpener on a television show, he decided to go to work.

The motor was mounted on a base and wired to an off-on

Adaptable to all livestock!

NELSON automatic WATER BOWL

Cool, fresh water in summer

Warm water in winter for 2c a day

Enjoy economical and profitable water warming even in sub-zero weather with the dependable, thermostatically controlled Nelson Water Bowl. Built of stainless steel and aluminum alloys for trouble-free operation. No floats, levers, or springs!

See your dealer or write for folder

NELSON MFG. CO.
315 20th St. N.E. Cedar Rapids, Ia.

You can afford Running Water

Maybe you think a water system like they have in town is beyond your reach, but perhaps you haven't heard about McDonald **low-cost** water systems. We'd like to tell you all about them. We believe you will agree when you see the literature that you **can** afford running water. . . in fact, that you can't afford to do without it any longer. This McDonald Hydro-jet pump, for example, costs only $96.00. Delivers up to 550 gal. per hour at high pressure from deep or shallow wells. **Mail this coupon today!**

A. Y. McDONALD MFG. CO.
Dubuque, Iowa

Send me facts on low cost water systems.

Name _____
Address _____
Town _____ State _____

FAIRBANKS-MORSE
Submersible Pump

It's brand new! Operates entirely under water — including the motor! Water-lubricated; water-cooled. Pumps without noise or vibration. Only *one* pipe is needed inside casing. Has a capacity of 1,600 g.p.h. at 60-foot settings, and pumps efficiently at 400 feet. Ideal for farms, homes and country estates. See this new submersible pump at your local Fairbanks-Morse dealer's store. Or write for details to Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE,
a name worth remembering when you want the best

SOFT WATER

A farm water softener. Can be used without a water system. Portable model. No installation necessary. Will remove 24,000 grains of hardness. Price—$39.50. *Write for detailed information.*

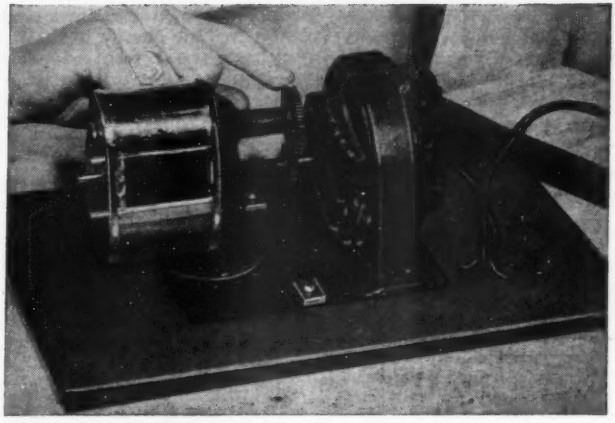
WEBB MANUFACTURING CO.
Parkville, Mo. Dept. Z.

SAFGARD
ELECTRIC FENCE CONTROLLERS

The Only Controllers With
3 YEAR REPLACEMENT GUARANTEE

5 models—battery-operated, Hi-line operated and combination—Fully approved by safety authorities. Available at your dealer's. Priced from $12.95 to $25.95. For literature write Dept. 5E

SAFGARD DIVISION
GRAND SHEET METAL PRODUCTS COMPANY
Melrose Park, Illinois



An old mixer motor, a pencil sharpener, two small gears, a switch, some wire, and a small cabinet were used for this project.

switch that was installed in a hood which covered the unit. An extension cord and plug was added. Then, making use of an old pair of gears, Jack coupled the motor to a pencil sharpener. That's all there was to it. Take a good look at the product of Jack's ingenuity. It won a Blue Ribbon at his county exhibit. What's more, it didn't cost anywhere near the $30 required to buy a commercial electric pencil sharpener.

ROBERT C. GARRISON

Questions and Answers

Drive Efficiency

▶**Question:** *Two machines are to be run at 3600 rpm. One is operated by a 3600 rpm ¾ hp motor, a 4 inch pulley with vee belt, being used on both shafts. The other is run by an 1800 rpm ¾ hp motor. There is a 4 inch pulley on the motor connected by vee belt to a 2 inch pulley on the machine. Will the slower speed motor stand up as well as the other under constant operation?*

A. B., Massachusetts

▶**Answer:** I would expect you to have some trouble with the drive from the slower speed motor. However, with the proper drive, one unit should be just as efficient as the other. The work of driving the machine at 3600 rpm is a constant value for either motor. If both motors are rated at ¾ hp, either one can handle it with equal efficiency. The only chance for loss is in the drive. In figuring a drive for machines of this nature, the type of load constituted by the machine, the speed ratio, and the size of the driven pulley are involved. The arc

INFORMATION
Service for the Reader

As a reader of ELECTRICITY ON THE FARM Magazine you are entitled to our information service free of cost.

Whenever you are seeking information about any electrical equipment, you can rely on the products of our advertisers.

If you are unable to find information about the particular equipment you require in our advertising pages, fill in the coupon below and we will provide you with the names of manufacturers, and where possible, will have these manufacturers send you descriptive literature.

Use this Coupon

ELECTRICITY ON THE FARM
Readers' Service Dept.,
24 W. 40th St., New York 18, N. Y.

Please have sent to me, without obligation, the names of manufacturers of:

.....

.....

.....

NAME.....

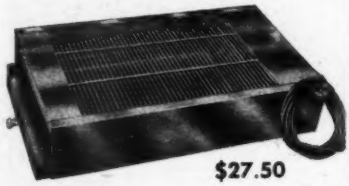
Post Office.....

R.F.D.....State.....

INSECTS KILLED BY THE BUSHEL

Without Dangerous Poison Sprays or Dusts!

No shock to people or animals. Write for free literature.



$27.50

Flies, mosquitoes, roaches, etc. can't stay away from the INSECT ELECTROCUTOR . . . modern, electrical way to eliminate insects from homes, dairies, greenhouses, etc.

Insects attracted to simple bait go past top grid, are electrocuted by mild, low ampere shock. Night flying insects swarm to machine, lured by light bulb in receptacle.

INSECT ELECTROCUTOR is portable, easily attached wherever most needed. Operates on regular 110-120 volt A.C. current. Foolproof, all-metal construction. 24" x 14" x 5". Simply plug in.

Have comfortable, insect-free porch, rooms all summer . . . clear barns, sheds of disease-bearing insects. Just 30c a month to operate. Buy two . . . protect both home and barn. Mail check or money order to:

INSECT ELECTROCUTOR CO.

P.O. Box 53, E Western Hills Station
CINCINNATI 38, OHIO

DRAINS Cellars, Cisterns, Wash Tubs; Irrigates your Garden, etc.

"TYPE P" Pump has 1,001 year 'round uses—house, garden, farm. Pumps 2400 GPH, 360 GPH 75' high or 1500 GPH from 25' well. Use 1/6 to 3/4 HP motor. DOES NOT CLOG! Postpaid if cash with order (West of Miss. add 50c) motor coupling included.

MONEY BACK GUARANTEE

LABAWCO PUMPS $6.95

Belle Mead 49, N. J.

LOOK BETTER FEEL BETTER

USE A **Vibrosage** ELECTRIC MASSAGER

*Professional-Type
*4 Scientifically Designed Applicators
*Sanitary

A few minutes daily use of VIBROSAGE gives that stimulating, healthful aid to circulation . . . relief from aches and pains. Four applicators assure maximum effectiveness for scalp, face and body. Operates on 110 volt, 60 cycle A.C. *Five day trial—money-back guarantee!* If your dealer cannot supply you, send $8.50 check or money order for prepaid shipment. Or, send $2; pay postman balance plus postage and C.O.D. charges.

BEAUTY APPLIANCE CORP., Dept. V464-E, Racine, Wis.

of contact (that part of the perimeter of the pulley which the belt contacts) has a definite effect on the efficiency. If the drive to which you refer were figured for home workshop machinery, for instance, the pulley on the machine should be a minimum diameter of three inches to provide sufficient arc of contact. This would then, of course, require a six inch pulley on the 1800 rpm motor. Given a center distance between pulleys of at least seven inches, such a drive should have equivalent efficiency as that of the 3600 rpm motor coupled to the machine thru four inch pulleys.

Cream Test Varies

▶**Question:** *What changes cream test from 42% down to 37% and 32% in three days? The same ration is fed every day and amount of milk is the same. We use an electric separator.*

Mrs. J. T., Minnesota

▶**Answer:** No cream separator should leave more than .03 of one percent of butter fat in skim milk, if it is operating properly. The ration which the cows receive should have no effect on the cream separating efficiency of the separator. There is an adjustment screw which regulates the thickness of the cream (by controlling the amount of skim left in), which may have been shifted slightly. This would, of course, affect the test.

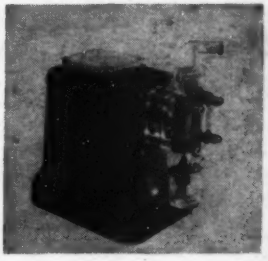
Very few separators will skim milk efficiently if the temperature of the milk falls below 90°. This would be the next thing to check. Finally, the separator should be kept in immaculate condition. Separators which are not clean materially increase the bacteria count of the milk separated, and the incidental clogging and restricting of the cream holes often forces a considerable portion of the cream out with the skim milk. If all conditions are proper, the fat test should be constant.

Regarding Fencers

▶**Question:** *We all get off on the wrong foot sometimes. In your March issue, C. H. Hamilton is a little off of the mark with his fence controller ideas. Most of us only want reasonable safety, with 100% efficiency. I have four fence controllers, hi-line and battery, on my farm. The last one I bought is a weed burner and is the best one I have, and my boys are all proud of it. I am not buying any more Wisconsin Approved controllers. Look at autos. Do we keep on buying those with little power because they are safer? No, we buy more powerful and speedier ones every year and try to protect ourselves*

SAFE DRINKING WATER

from unprotected water supplies . . .



. . . with the CHLORINET®

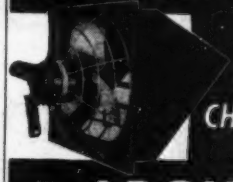
Dependable . . . Costs only a few cents each day to operate. Write for free information.

WALLACE & TIERNAN

Chlorinet Division E-1

Belleville 9 New Jersey

HEALTHIER



PIGS, COWS, CHICKENS with

ARGUS VENTILATING FANS

TESTED and ENDORSED by leading agricultural schools

ARGUS DRAFT-FREE CLEAN AIR promotes healthier stock, more eggs, more milk

- Equipped with Minneapolis-Honeywell thermostatically controlled air switch
- Precision-balanced for minimum vibration, trouble-free dependability
- Automatic louvre action prevents back drafts

ARGUS FANS freshen air, control humidity and temperature perfectly, silently, dependably. Clean, odor-free air improves working conditions. Drier air protects buildings, prevents feed spoilage. *12" to 24" sizes suit your need.*

Also ventilating fans for every purpose.

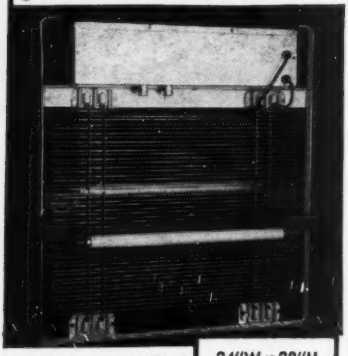
DEALER INQUIRIES INVITED

ARGUS MANUFACTURING CO.

3134 N. Kilbourn Ave. • Chicago 41, Ill.

For your Insect Problem use a

Gardner Electrified Insectocutor



24"W x 28"H
New Blacklight
Fluorescent
tubes included

Gardner Electrified Insectocutor — a proven medium as an economical aid in the control of night-flying insects that plague farm and garden. Hundreds are already in operation. Gardner also makes electric fly traps and fly screens for use in barns, food processing plants and homes. Write for an illustrated folder to

Gardner Manufacturing Co.
6553 Barstow St., Horicon, Wis.

STROHLANDS INFRARED Brooder

It's Reflectomatic!

ALUMINUM REFLECTOR reflects 95 to 97% of all heat rays . . . UNIFORM HEAT PATTERN across broad brooding area.

SHIELD Guards Micro-Thermostat

Pat. applied for

Write today for REFLECTOMATIC folder

HARFORD METAL PRODUCTS, INC.
BOX FE, ABERDEEN, MD.

in other ways. Along the same lines, we want to keep our cattle where they belong, even if there is some danger.

E. J. M., Pennsylvania

▶**Answer:** These points are well taken and we can readily agree with the thinking behind them. However, we feel that anyone using electric fencers should be aware of their potential dangers.

It is true that each year we buy faster, more powerful automobiles. Tractors are more and more common on our farms and they, too, have their potential dangerous aspects. But in both of these pieces of equipment, the automobile or the tractor, there is an operator involved. He can compensate for different conditions as he sees them. Both vehicles have noise and movement to make us aware of them and to warn us.

In the case of an electric fencer, it is silent. It does not move and it looks quite innocent. We have been taught to expect electrical equipment to be so insulated that we will not get shocked if we contact it. However, an electric fence is designed to shock. Perhaps if it were sufficiently well marked at fairly close intervals, so that anyone would automatically be warned, that would solve the problem.

One of the difficulties inherent in electric shock is that it can render a person helpless. If one brushed against an electric fence, there wouldn't be much chance of anyone getting hurt. This is true with the animal. If their muzzle or another part of their body touches it, reflex action makes them back off. When a person comes in contact with an electric fence, it is usually by grasping the wire to depress it for stepping over or to raise it for crawling under. It is this grasping that is bad. If the shock is sufficient so that the person cannot release himself, serious injury or death can result. The current values involved are critical and also minute.

Extensive study has been made regarding the ability of a person to withstand electric shock. These studies form the basis for fencing standards. There is a definite relationship between allowable current flow and the time of its application and the time it must be cut off. The greater the current, the longer the off-period. The reason for this is to enable a person to release himself. Continuously charged fencers have the inherent danger of freezing a person to the fence so that they cannot release themselves.

In spite of the foregoing, we know that farmers will use fences that they feel are most effective. Our main desire is to awaken consciousness of the fact that there is potential danger in such equipment, and hope that steps will be taken to eliminate any possible occurrence of preventible accidents.

Pump Pilot Light

▶**Question:** *I would like to know how to install a pilot light in my house to show when my electric pump is running.*

R. B. U., Indiana

▶**Answer:** You will need to run a pair of wires from the pump's motor terminals to the point where you wish to install the pilot light. There they will connect to the terminals of the light, turning it on whenever the pump's motor starts.

Emergency Stoker Use

▶**Question:** *I have a coal stoker which is equipped with an extra pulley so that it can be run with a gas engine in case of a power failure. It is impossible to remove the vee belt from the electric motor to the stoker. Would I harm the motor if I ran the stoker and motor at the same time with the gasoline engine?*

E. B. J., Nebraska

▶**Answer:** No, it will not do any harm to operate the motor and stoker, by means of the engine, at the same time. Just be sure the motor switch is turned off while doing so.

Freezer Burn

▶**Question:** *I should like some information regarding freezer burns on meats stored in freezers. Is there any danger under this condition?*

H. L. H., Ohio

▶**Answer:** Freezer burn is not harmful—it just lowers the quality of the meat. The best way to prevent it is to properly package each piece stored. Freezer burn is nothing but excessive evaporation of the moisture from the meat. If the meat is properly packaged in moisture-proof wrappings, this evaporation will not take place.

The Automatic POULTRY WATERING FOUNTAIN

FOUNTAIN $6.95

Completely automatic. Rustproof brass. No moving parts. Easy to install. Non-flooding. Sanitary. Operates on any pressure. Heater protects to zero. If your dealer doesn't carry it, order direct.

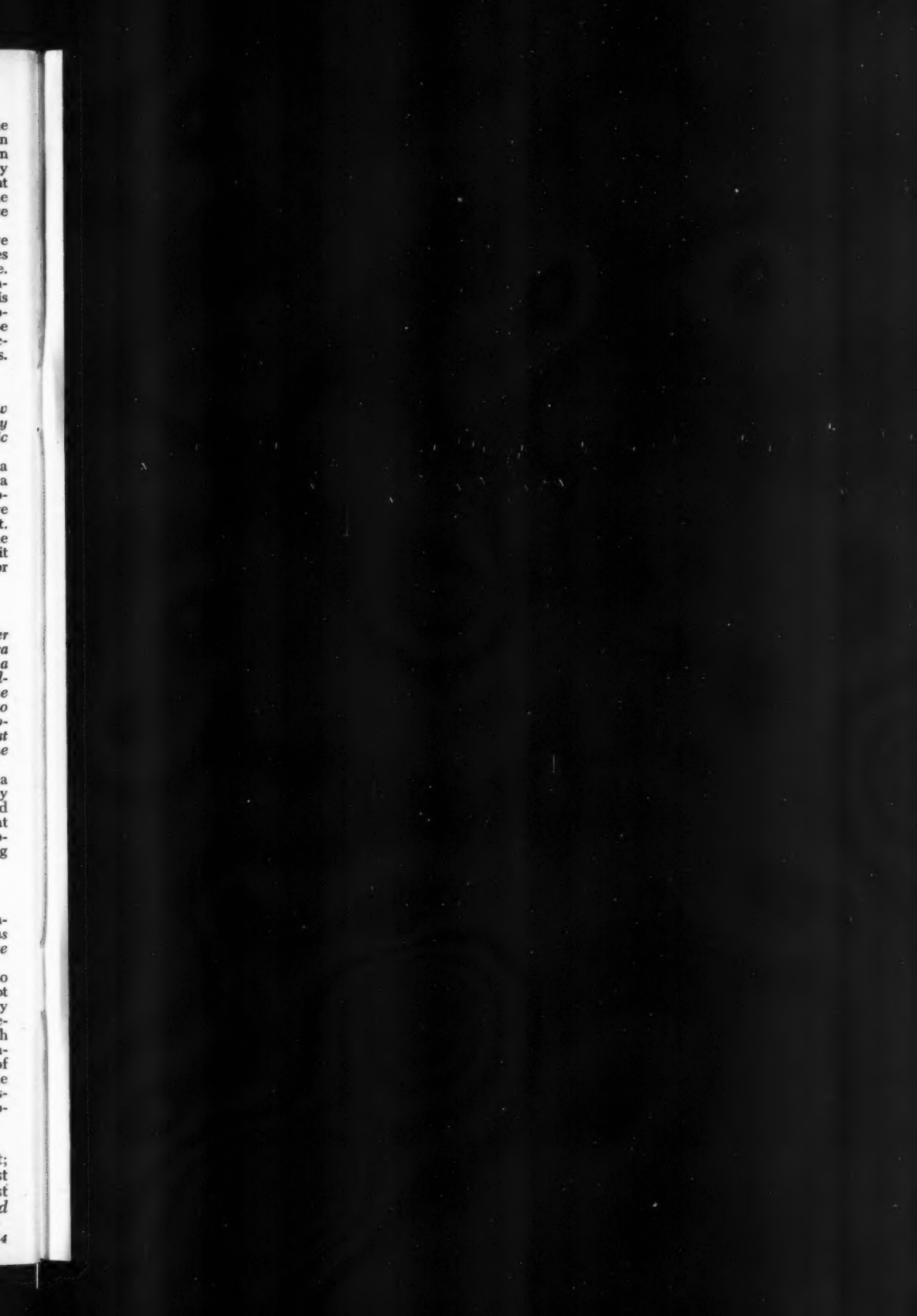
WRITE FOR FREE LITERATURE

HEATER $4.95

OPTIONAL ANTI-FREEZE PROTECTION

SMITH-GATES, CORP.
DEPT. E1 PLAINVILLE, CONN **Both Only $11.20**

The best preacher is the heart; the best teacher is time; the best book is the world; the best friend is God. —*Talmud*



FUN FOR ALL—the whole family can take part in this contest. CASH PRIZES will be awarded for the best suggestions for a last line to complete the verse at the bottom of this page.

What Would YOU Say?

Rhyme Contest

Awards For February Contest

My neighbor, when the weather is hot
Uses all of the patience he's got
A-teaching his cows
The right place to browse
? ? ? ? ? ?

The Winning Last Lines

FIRST PRIZE—$25 CASH

"I 'shocked' mine—they never forgot

Mrs. Lloyd W. Peavey
R.F.D. 2
Warwick, New York

SECOND PRIZE—$10 CASH

"Why battle your cattle?—let watt"

Leroy Fluck
R.F.D. 1
Hellertown, Pa.

Five Consolation Prizes—$3 Each

"Mr. Watt in a wire he forgot"

Miss Paula Boutwell
Route 1, 822
Beaverton, Oregon

"With the 'watt', all troubles he'd boycott"

Arnold Greeler
R.F.D. 1
Neosho, Wisconsin

"But the 'current' lesson he forgot"

Mrs. Robert E. Foote
R.F.D. #2
Andover, Connecticut

"Power fences are best for his plot"

Mary Mulvaney
156 Old Lyman Road
So. Hadley Falls, Mass.

"Hot wires would save many a trot"

Mrs. Erik A. Nystrom
Route #1
Sharpsville, Pennsylvania

Honorable Mention

Mildred Auwaerter, Montrose, Iowa; Durward W. Balduf, Batavia, New York; Gerald Belter, Baraboo, Wisconsin; Mrs. C. C. Cornell, Buffalo, W. Va.; John H. Crubaugh, Shannon, Mississippi; Harold Eaker, La Pryor, Texas; Miss Maria B. Friesen, Osler, Saskatchewan; Mrs. Homer Griffiths, Dodgeville, Wisconsin; Charles Koppenhaver, Jr., Millersburg, Pennsylvania; Robert Lynn, Newton, Iowa; Mrs. Ercil Mann, Russellville, Ohio; H. L. McLeod, Fort Wayne, Indiana; Mrs. Arthur Schmitz, Belgium, Wisconsin; Charles H. Sellock, Fenwick, Michigan; Alice S. Williams, Lancaster, Wisconsin.

RULES—MAY CONTEST

Seven cash prizes will be awarded for the best last line to complete the verse in the coupon below. Your suggestion should rhyme with the second line.

The first prize will be $25 cash; the second prize $10. In addition, five consolation prizes of $3 each will be awarded for the best last line furnished.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may enter but each contestant may submit only one line.

Question "A" must be answered.

Entries must be sent to the Contest Editor, ELECTRICITY ON THE FARM Magazine, 8 So. Dearborn Street, Chicago 3, Ill., before June 2.

The decision of the judges is final and all entries become the property of ELECTRICITY ON THE FARM Magazine.

Winning names and entries will be announced in the October 1954 issue.

Send your entry on the coupon or make out a similar form on a plain sheet of paper or government postcard.

A man had a cute little cottage
As worthless as portions of pottage
'Till a power line came thru
Then what did he do
? ? ? ? ? ? ? ?

My suggestion for a last line for above verse is:

.....

(A) Does your family keep any cows?.....Do you make your own butter?.....What type of churn do you use?.....

My name is.....

R.F.D.....Post Office.....

County .....State.....

PERIODICAL

Save Time and Steps

AN ADEQUATE ELECTRIC WATER SYSTEM WILL DO THIS JOB AUTOMATICALLY FOR ONLY A FEW PENNIES PER DAY

PLENTY OF RUNNING WATER WITH PLENTY OF PRESSURE TO DELIVER IT WHERE YOU NEED IT! THIS IS ONE OF YOUR FIRST FARM NEEDS.

The backbreaking labor of hand pumping and carrying makes every drop so precious. Yet look around! There's hardly a chore you can do – and do profitably – without an abundant supply of water.

You need it in your dairy barn, poultry house, kitchen and laundry. It's important for increased milk and egg production . . . for modern living. You need it for health purposes in your milk house and bathroom, for fire protection, for watering lawns and gardens.

And by doing the job electrically at such low cost, you save hiring extra help . . . release yourself for other important farm work.

MAY IS NATIONAL WATER SYSTEMS MONTH . . . A GOOD TIME TO SEE YOUR FARM EQUIPMENT DEALER AND BRING YOUR WATER SYSTEM UP TO DATE!

This magazine is sent to you with our compliments so you can learn of the many ways in which your electric service can provide help—lighten your work, cut costs. Remember—electricity is your most efficient and cheapest hired man.

SOUTHWESTERN ELECTRIC COOPERATIVE, INC.

Greenville, Illinois

Phone 1025